

JOURNAL

OF THE

AMERICAN VETERINARY MEDICAL ASSOCIATION

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Volume CXVI

JUNE 1950

Number 879



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AVMA ☆ Report

--- Veterinary Medical Activities ---

★ President C. P. Zepp, Sr., and Executive Secretary J. G. Hardenbergh attended the meeting of the American Animal Hospital Association at Denver on April 25-28. Dr. Zepp spoke on "The AVMA and the AAHA"; Dr. Hardenbergh attended a meeting of the Joint Committee on Foods.

★ ★ ★

★ President-Elect W. M. Coffee attended the meeting of the Northern Illinois Veterinary Medical Association, where he showed motion pictures of his clinic-type practice and emphasized the importance of individual effort by every veterinarian to supplement the public relations program of the AVMA.

★ ★ ★

★ Drs. M. A. Emmerson (chairman), L. E. St. Clair (secretary), J. F. Bullard, A. L. MacNabb, L. M. Roderick, and C. F. Schlotthauer met in Chicago on April 24 as the Fellowship Committee of the AVMA Research Council to consider applications for fellowships under the research fund of the Association.

★ ★ ★

★ Dr. W. R. Krill, who served as chairman of the committee under which the National Board of Veterinary Medical Examiners was evolved and developed, spent April 8 in Chicago formulating a basic plan for a constitution and by-laws for this group to consider and complete at the first meeting of the Board in Miami Beach in August.

★ ★ ★

★ The Program Committee for the 87th Annual AVMA Convention (*see* April JOURNAL, p. 323) has worked to assemble an outstanding group of speakers on the full range of veterinary medical problems. The emphasis of the program will be on useful information, concisely told.

★ ★ ★

★ Committee reports are arriving, very few before the deadline date, and are being edited for preprinting and mailing to delegates to the House of Representatives, as provided in the by-laws. Consistent efforts by President C. P. Zepp, Sr., to keep the reports practical, have been rewarded. Excerpts are being prepared for JOURNAL readers.

★ ★ ★

★ Dr. Rue Jensen, Fort Collins, Colo., was awarded a Ralston Purina Mills Fellowship recently. He will study the bovine liver, with special emphasis on the steps which precede abscess formation. The AVMA is represented on this fellowship committee by Dr. M. A. Emmerson.

★ ★ ★

★ Veterinarians in the Rockford (Ill.) area met on April 27 to decide how the ring test can be used to best advantage and to discuss public health problems. Assistant Executive Secretary R. C. Klussendorf represented the AVMA at this meeting.

★ ★ ★

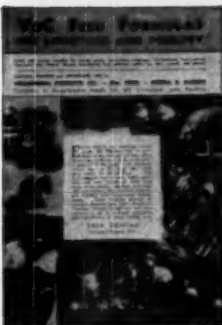
★ Drs. S. W. Haigler and R. C. Snyder, chairman and secretary, respectively, of the AVMA Committee on Ethics, have collaborated with the staff in the production of a 35-mm. strip film entitled, "The Golden Rule for Veterinarians." It is based entirely on the AVMA Code of Ethics and illustrates its most important sections by showing ethical and unethical practices. State and local veterinary medical associations can obtain the film for showing at their meetings by sending requests to the AVMA office.

★ ★ ★

★ Dr. C. D. Van Houweling, AVMA director of professional relations, attended the official opening of Wilson & Co.'s new research laboratory in Chicago on April 26. Representatives of agriculture, industry, and medicine toured the new laboratory and lunched together in the Company's dining room.



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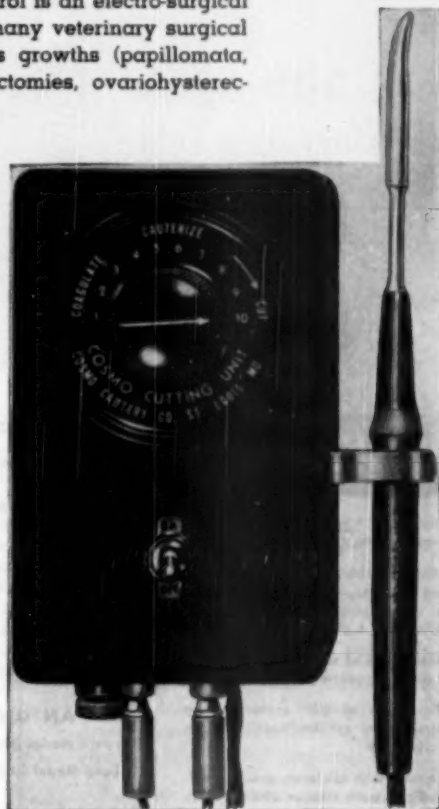
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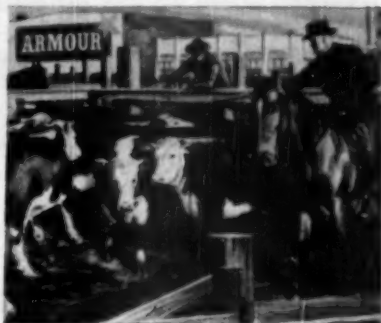
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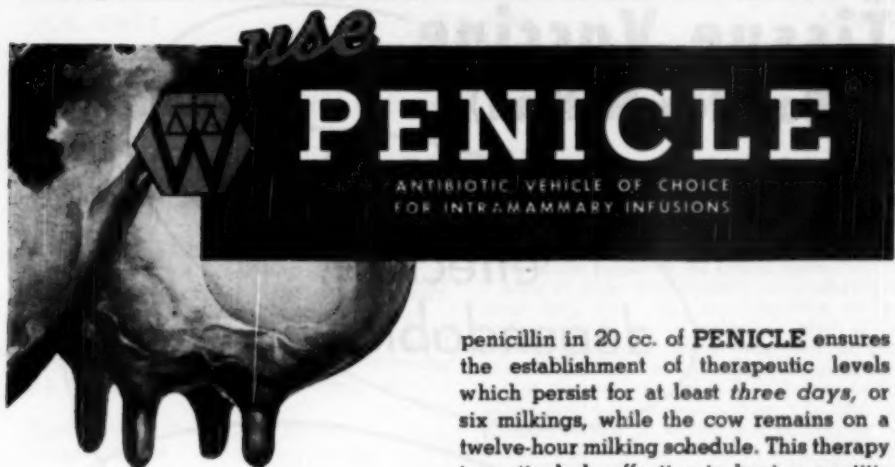
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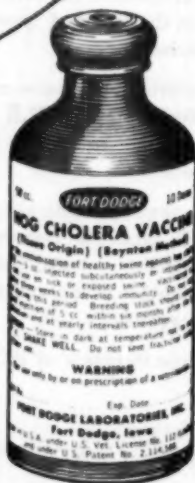
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The Past and Future of Hog Cholera Control

A. H. QUIN, D.V.M.

Kansas City, Missouri

IOWA IS still the greatest of all pork-producing states, and hog cholera is an important subject for discussion at veterinary meetings.

It may be in order to provide a brief history of this disease before discussing the future of hog cholera control.

HISTORY OF HOG CHOLERA IN THE UNITED STATES

Hog cholera first appeared near Cincinnati, Ohio, in 1833. By 1860, approximately 100 infected areas were known to exist. By 1880, the disease was so widely disseminated and losses so disastrous that the U.S. commissioner of agriculture obtained a grant from Congress and enlisted the aid of Drs. Salmon, Detmers, Law, and Lyman in an effort to discover the true cause and to control losses. With the establishment of the U.S. Bureau of Animal Industry in 1884, this effort was intensified and has continued to the present day.

About 1890, Dr. Salmon postulated that hog cholera was due to a specific bacillus—the organism now known as *Salmonella choleraesuis*—and for some twenty years the "hog cholera bacillus of Salmon" was erroneously thought to be the single and specific cause of the disease. This error was clarified by the epochal research of Dorset, Niles, and McBryde at Ames, Iowa, in 1905 and 1906. They not only proved that hog cholera was due to a filterable virus but also developed a method for hyperimmunizing swine to obtain a protective antiserum. This method of serum production was patented by Dorset and the

Bureau of Animal Industry, without royalty, in the name of the people of the United States.

Some 25 states soon launched the production of serum and, soon after, the production of hog cholera virus as well as antiserum. Much of this production—by the various states and by early commercial laboratories—was extremely crude when judged by present standards. Postvaccination losses were frequent and serious. In fact, the situation became so serious that in 1913 an enabling act by Congress permitted the U.S. Department of Agriculture to establish and enforce the Serum-Virus and Toxin Law through a division of U.S. BAI. This law provided standards for issuance of production licenses and the testing of serum and virus for potency and safety. At the present time, only cell and fibrin-free hyperimmune antiserum which has been pasteurized is permitted for sale in interstate commerce. All serial lots of both antiserum and phenolized virus must pass the mandatory live pig test under the direct supervision of U.S. BAI veterinary inspectors before release for sale. Federal reports indicate a current production of approximately 1,000,000,000 cc. of antiserum and some 93,000,000 cc. of phenolized virus per year.

As with many of the other filterable virus diseases, hog cholera is a cyclic plague. History tells us that the great nationwide outbreaks occurred in 1887, 1896, 1913, and 1926. In the outbreak of 1896, approximately 13 per cent of all swine in the nation succumbed to the disease. In the 1926 outbreak, a drastic shortage of hog cholera antiserum contributed to heavy losses. This prompted the ruling by the Federal Serum Code Authority that all producers have at least 40 per cent of their total annual production on hand by May 1 of each year.

SEASONAL PEAKS

A study of the epizootiology of hog cholera in Iowa, by McBryde on graphs charted

Dr. Quin is head of the Professional Service Division, Jensen-Salsbery Laboratories, Kansas City, Mo.

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over a five-year period, shows that the season of greatest incidence ranges from July through September, although sporadic outbreaks may occur during all seasons of the year.

Some fifty years of observations and study have failed to fully clarify the story of just how hog cholera is spread. It has been shown that field virus will live in unburied carcasses for months during cold weather, but that it is destroyed in a matter of hours or days in decomposing carcasses during hot weather. At one time, it was thought that farm pigeons served as potent spreaders of the disease but controlled experiments demonstrated that this was untrue. On the other hand, the disease has been successfully transmitted from sick to susceptible swine through the bites of both house and stable flies. It is also the consensus that crows, buzzards, roving dogs, the hoofs of horses, wheels of wagons and trucks, and the shoes of people may carry the virus from infected to clean premises.

THE CLINICAL PICTURE

The veterinarians of Eastern Iowa are probably better posted on the field picture and diagnosis of hog cholera than any other comparable group of veterinarians in the nation. The following statements are, therefore, offered merely as a review of the syndrome picture.

The most typical thing about hog cholera is that it is so frequently atypical. However, the history of a pig or two lost within three weeks of the appearance of herd symptoms; the gradual but increasing spread of the disease to all swine in the drove; the physical picture of the pig being "lost in thought or looking for diamonds"; the muscular weakness evidenced by a swaying gait; the temperature levels of 104 to 107 F. in the sick swine; the inception of a rather typical diarrhea; the inclination to hide or bury in the bedding; the presence of conjunctivitis with gumming of the eyelids; the typically weak and raucous squeal when handled; the sporadic cholera convulsion in the peracute cases; the absence of frank pneumonic symptoms as a drove-wide problem—all of these are noted by veterinarians in evaluating the drove picture.

On autopsy, the very sparsity of lesions is often diagnostically significant. The fully typical findings in highly acute hog

cholera include very light and scattered, extremely fine, pin-point petechiae on the kidneys, the mucosa of the bladder, the serosa of the intestines, and the lungs. The lymphatic glands in the fully typical case are of the strawberry type—i.e., a congested exterior with deeply reddened marginal congestion on cross section. Very fine petechiae may be noted on the epiglottis and the mucosa of the gall bladder. The spleen may or may not show moderate enlargement but the presence of pea- to bean-sized, deep purplish red, marginal infarcts are diagnostically significant. The enteric change in acute hog cholera is more of an even and profound congestion rather than an active inflammatory or desquamating enteritis. However, in the subacute field case, progressive enteritis with presence of button ulcers is quite constant.

The one lesson learned through all these years of observation by veterinarians is that it is the gravest of errors to depend on either symptoms or autopsy findings alone in the field diagnosis of hog cholera. In diagnosis, it is absolutely imperative to correlate all points of history, symptoms, and autopsy findings in arriving at a conclusive and error-proof opinion. It is also a proved maxim—proved by time and costly errors—that in nonimmune droves any syndrome characterized by fever and septicemia must be tentatively diagnosed as hog cholera and handled as such. There is no room for fine-point differential diagnosis in the non-immune drove.

PROPER CONTROL APPROACH

Now, if you will bear with me as a veterinarian who is rapidly approaching that hazy period where one may be classified as an "old timer," I would like to take you back to the years that immediately followed the discovery of serum-virus prophylaxis by Dorset and his coworkers. Let us go to Union County where my father was an active practitioner. The year is about 1910 or 1911 and Dr. Johnson, now at the BAI office in Des Moines, was the young veterinarian assigned by the BAI to hog cholera control in that area.

When cholera broke out on a farm, the premises were immediately placed under closed quarantine and a quarantine placard placed on the outer farm gate. All dead swine on the farm were either burned or deeply buried under lime. The well swine

in the drove were given protective serum. Drove on contiguous farms were vaccinated with virus and antiserum and also placed under a duly placarded quarantine. Quarantines were released by the state veterinarian only after approval by the attending veterinarian and/or the BAI veterinarian assigned to the control area.

To make what could be a long story short, hog cholera was accorded the same respect and was approached with the same seriousness that today is accorded an outbreak of anthrax or any other major contagion of livestock. The end result was, at least in my home county, that hog cholera showed an almost phenomenal reduction in incidence within a brief period of three to five years. There is little doubt in my own mind that, if exclusive veterinary control of this type could have been continued for another ten years, hog cholera in Iowa might have been reduced to a point of practical, if not complete, eradication.

ERADICATION THE GOAL

Within the past thirty-five years, it is apparent that all interested parties—swine raisers, commercial laboratories, federal and state livestock sanitarians, and veterinarians—have lost sight of the real objective, the real goal, in our relationship to hog cholera, namely, that the proper long range objective is not only control but eradication of this preventable plague of swine.

The real problem before us all is not how much serum and virus a veterinarian can turn over in a private practice. It is not whether farm bureau coöperatives and druggists' associations shall squabble, fight, and bicker in our legislative halls as to who has the legal right to peddle the live or active virus of hog cholera to untrained laymen. It is not whether commercial expediency is justified in placing the sale of hog cholera antiserum and virulent hog cholera virus on the same basis as the peddling of salt, sugar, and potatoes. I reiterate — and as true veterinarians, I know in my heart that you join me — that the only worthy goal of the future is the complete eradication of hog cholera.

Least there be some who feel that such an attitude is chasing rainbows, I would like to borrow the expression of the late Al Smith in saying: "Let's have a look at the record."

Just across our northern border is the

Dominion of Canada. Within its borders is an extensive swine industry, mostly Yorkshires and Berkshires, and scores of community auction rings. In 1946, the control of hog cholera in the entire Dominion, from Halifax to Vancouver, cost less than \$600. And, for the year 1947-1948, let's take a look at the annual report of Dr. Childs, veterinary director general of Canada, and we quote:

It is gratifying to report that no cases of hog cholera have occurred in Canada for the fiscal year 1947-48. This disease is controlled by the slaughter of all hogs on infected premises, the cleansing and disinfection of the premises, and the serum treatment of all hogs in the vicinity of an outbreak.

It is true that there are many contingent factors that bear on this striking contrast between our U.S. hog cholera bill of \$30 to \$40 million annually and the cost to Canada, but here are four significant factors that are beyond argument:

- 1) The importation and use of live hog cholera virus has never been permitted in Canada.
- 2) There is no "farmer vaccination" or untrained lay vaccination of swine in Canada.
- 3) No susceptible incoming swine to community sales are given live virus and antiserum.
- 4) The disease is accorded the same respect in Canada that we give to glanders, anthrax, foot-and-mouth disease, and other major contagious diseases.

THE REACTION FACTOR

If we center our thinking on the core of the problem, and disregard many facets of the discussions and counterdiscussions which have for years featured the simultaneous immunization of swine against cholera, a few irrefutable facts are outlined.

The first of these is that we have the natural and normal resistance level of the pig and the protective titer of the serum on one hand and the invasiveness and virulence of the injected virus on the other.

Now, all experienced practitioners are well acquainted with the common determinative or contributing factors which may throw this delicate reaction out of balance. These include endoparasites, concurrent infections, prior exposure to virus, gross feeding errors, and adverse environmental

conditions. We are not fully conversant with many of the unclarified predisposing factors which may throw a serum-virus reaction out of balance. Might I ask, for example, if any practitioner is able, by visual examination of a drove prior to vaccination, to determine whether subpathogenic strains of *Salmonella* organisms—normally present in the intestines of swine—will be raised to pathogenic levels by the symbiotic stimulation of the injected virus? A dozen more equally pertinent and germane questions could be propounded.

Perhaps we may well keep in mind some research observations that were made at Ames Government Station several years ago. It was shown that as little as 0.000001 cc., or even less, of hog cholera virus can reproduce the disease in a susceptible pig. When we inject a pig with 2 cc. of virulent phenolized virus blood, we are subjecting the animal to a challenge of at least 2,000,000 minimum lethal doses of one of the most deadly pathogens in the whole realm of bacteriology. This is the answer as to whether picking healthy pigs only as fit subjects for vaccination, and the paramount importance of fully potent antiserum in ample doses, are absolute prerequisites for satisfactory field results.

Permit me to also bring to mind that controlled research observations have shown that a distinct leucopenia or drop in the white blood cell count follows the injection of virus and antiserum. This leucopenia is the most important of all factors which predispose swine to intercurrent bacterial infections and the only known way to inhibit such leucopenia even slightly is with an ample overdose of protective serum.

The third fact which we may well cite is that pigs whose general resistance level has been sapped by poor feeding, parasites, or devitalizing bacterial infections are poor subjects for vaccination with any biological product, for the simple reason that their body mechanisms involved in production of antibodies are often latent or nonresponsive—they simply do not respond to the stimulus of vaccination.

VACCINE

Dr. Marion Dorset, a scientist who might well be called the Pasteur of hog cholera research, spent the last years of his life in the search for a chemical agent which would inactivate hog cholera virus without

destruction of the antigenic properties. His announcement of the chemical hexa-methyl-para-rosaniline chloride, or so-called crystal violet dye, as an effective inactivant for hog cholera virus, was made in 1935. A little before this, Dr. W. H. Boynton, a veterinarian noted for his research on rinderpest, announced successful inactivation of virus tissues with eucalyptol. Currently, three types of nonviable hog cholera vaccines are available. They are made from (1) virus-laden spleens processed with crystal violet dye; (2) virus spleens processed with eucalyptol; and (3) virus blood processed with crystal violet.

My own observations have been confined to either vaccine of blood or spleen origin inactivated with crystal violet dye. Tests by Cole and Henley, of the Ames station, indicate a 96.1 per cent protection level of vaccinated pigs against a challenge dose of 2 cc. of virus given at market age. Recent experiments indicate that the protection conferred by a 5-cc. dose of vaccine is of at least twelve months' duration. Further, it has been shown that vaccinated pigs develop an adequate protection titer against a virus challenge within fourteen days after vaccination. No systemic reactions or leucopenia have been noted following injection of the nonviable spleen vaccine inactivated with crystal violet dye.

Time will not permit any further delineation of this subject, but the statement can be made and defended that properly prepared and tested nonviable hog cholera vaccines are now internationally recognized as of value in establishing active immunity against cholera.

THE FUTURE

In considering the future status of hog cholera within the confines of our nation, it must be the decision of the swine raisers and veterinarians whether they wish to compromise with this plague by vaccination alone, or whether they will coordinate the fruits of science and their conjoined knowledge in a long-range plan to forever rid our swine industry of this menace.

So long as feeder pigs are sold, so long as unsterilized garbage is fed, and so long as spontaneous field outbreaks occur, there will always be a place for hog cholera antiserum and for virulent virus. But, I can not envisage where the unrestricted sale of some 33 barrels of fully virulent virus to untrained laymen can possibly fit into a

sensible long-range plan of control and eradication.

In each of your individual communities, there does appear to be a place for the year-to-year administration of dependable non-viable vaccines to healthy farm herds. This, at least, precludes the hazards of bringing a fully virulent virus in contact with susceptible pigs and completely eliminates the risk of contamination of premises with live virus.

There is one arduous chore that always falls to the lot of individual practitioners — it is that client education and guidance in the protection of swine against cholera is within the proper domain of veterinary practice and there it should remain. But, if we are to look forward to our pledge to exert all efforts toward eradication of the diseases of livestock — and hog cholera cannot be excluded — we must put this ideal ahead of motives based on the purely monetary return incident to the use of biological products.

Senators Laud Veterinarians' Work on Mexican Foot-and-Mouth Disease

The latest United States Senate report on foot-and-mouth disease in Mexico gives a unanimous vote of confidence to the administrators and veterinarians of the eradication campaign. It is keynoted with a sympathetic but realistic review of what has been done and what remains to be done, and is punctuated with careful appraisals that inspire optimism yet dispel hopes for any quick end to the Mexican "aftosa war."

This report, dated March 24, 1950, was made by the Subcommittee on Foot-and-Mouth Disease, Committee on Agriculture and Forestry, U. S. Senate. Minnesota's Senator Edward J. Thye headed the group of five senators who toured the zone of operations during the week of Feb. 27, 1950, in company with Drs. B. T. Simms and M. R. Clarkson of the U.S. BAI.

In brief, here are the senators' observations:

The job of inspecting and vaccinating the estimated 15 million susceptible animals in the infected area, measuring about 205,000 sq. mi., is being done effectively. The United States necessarily bears the larger share of the direct costs—a share that amounted to \$110,868,228 from the start of the program through Jan. 28, 1950. The cost to the United States, presently

about \$2 million a month, is expected to be less in the future.

The climax or critical period has now been reached. The vaccination phase is viewed as a holding operation whereby immunity is built up over a period of time, during which nature is expected to take its course and kill most of the virus because of a lack of natural hosts. By March 1, 1950, animals in the area where the round of vaccinations was first completed (three or four vaccinations each) commenced to lose their immunity, and it remains to be seen whether the virus has been eradicated in that area. By December, 1950, all vaccinated animals will be losing their immunity and the program will then be put to its final test.

PRESENT STRATEGY—LESS VACCINATION, MORE INSPECTION

Progressively less vaccine will be produced and fewer animals vaccinated as the weeks go by, while inspections will be stepped up. In fact, inspection at the conclusion of the immunity period is the most important duty our forces will have.

Administrators and veterinarians connected with the program believe that the campaign will succeed—a belief that is amplified by subsidence of the disease during the past year. Another encouraging note has been the close cooperation and friendly relations between Mexican and United States personnel. A better example of what can be accomplished when two countries work together would be hard to find.

SEE 1952 AS EARLIEST END OF CAMPAIGN

While there is every indication that the campaign will be brought to a successful conclusion, it is impossible to guarantee such a result at this time. It will be at least the latter part of 1951 or perhaps even late in 1952 before anybody can safely say that foot-and-mouth disease has been eradicated in Mexico. If, during 1951, it becomes obvious that the program is accomplishing its purpose, inspections may be reduced, but not eliminated, in 1952.

The subcommittee's report paid sincere tribute to Co-directors H. H. Johnson and Oscar Flores and to all veterinarians engaged by the joint Mexico-United States Commission, with special mention for Drs. Simms, Clarkson, L. R. Noyes, and Robert J. Anderson. The latter two are associate co-director and technical co-director, respectively.

Excerpts from 1949 Report of the Chief of the U.S. Bureau of Animal Industry

All Americans can look forward to a continued, wide choice of high protein foods that help make this country's standard of living among the highest in the world, because stockmen know that there are approximately 140,000,000 young farm animals that have the best chance in the world of growing into full usefulness.

Research gains would soon be destroyed if vigilance against disease were relaxed.

Dreaded animal diseases not known to exist in the United States include foot-and-mouth disease, rinderpest, contagious pleuropneumonia, glanders, fowl plague or fowlpest, East Coast fever, dourine, surra, and Teschen disease.

Eradication of disease by the four-point program of inspection, quarantine, slaughter of diseased and exposed animals, and disinfection of premises where the disease occurred is costly in terms of money spent, but it represents only a small investment in animal health when compared with the potential toll of an acute disease.

Livestock farming in the United States is a successful and prosperous way of life, but the investment itself, as well as the profits, could be destroyed by disease.

During 1948, meat inspections were conducted at 996 establishments located in 347 cities and towns and involving 77 per cent of all cattle, calves, sheep, and swine slaughtered commercially. The remaining 23 per cent of the commercially slaughtered cattle were not BAI-inspected, neither were the 11.6 per cent of farm slaughtered animals.

Rabies cases reported in 1948 totaled 6,610 dogs, 599 cows, 34 horses, 14 sheep, 36 pigs, 378 cats, 5 goats, and 819 miscellaneous animals, mostly wild. These, together with 13 human cases, make a total of 8,508. In wild animals, especially foxes, the number of cases is again outstanding, as in 1946 and 1947.

On January 1, 1949, 70 veterinarians and other bureau employees were working with 173 state, 8 county, and 257 territorial employees in supervising the dipping of 8,625,513 cattle and 1,006,085 inspections or dippings of horses and mules. The object was to eradicate the cattle fever ticks, *Boophilus annulatus* and *Boophilus annulatus* var. *microplus*.

CATTLE

Experiments to increase the specificities of bureau tuberculin and to reduce or eliminate the occurrence of no-visible-lesion cases in field testing have yielded encouraging results.

Tuberculin tests were conducted during 1948 on 8,737,501 cattle in 536,162 herds. There were disclosed 17,007 reactors, or 0.19 per cent infection.

Although the percentage of tuberculous reactors

has been reduced to a very low point, there has been a slight rise in this percentage since the low mark in 1943. There certainly is no room for complacency in this situation, and there is a justifiable concern over the rise.

The observation of intradermal injections of tuberculin is just as effective forty-eight hours after injection as after seventy-two hours. The intradermal test will be used in stockyards much more extensively if the shorter reading time is permitted.

Carefully controlled tests indicate that a standardized dose of tuberculin is an important factor in obtaining a reliable reading. It is recommended that the dose for routine testing be 0.1 cc. and for the retesting of infected herds the dose be 0.2 cc.

More than 90 per cent of the carriers of anaplasmosis reacted positively to a complement-fixation test. This is a high efficiency for the diagnosis of anaplasmosis.

In 1948, there were 120 outbreaks of anthrax in 14 states involving 63 counties and 1,654 animals.

The adult intestinal threadworm, *Strongyloides papillosus*, produced swelling and inflammation of the intestinal lining in calves. Coccidiosis in dairy calves was controlled and prevented by sulfaquinoline. The drug did not eliminate coccidiosis, but it reduced the severity of the disease and the treated calves gained 59 per cent more weight than did the untreated controls.

All lice on cattle were killed in less than eight hours by 0.5 per cent chlordane suspension. This treatment was nonirritating, relatively inexpensive, remained effective forty-five days, and single applications were nontoxic to newborn calves.

A mixture of benzene hexachloride (12% gamma isomer) 5 parts, xylol 10 parts, and pure pine oil 85 parts, was found to be particularly effective both as a lethal and repellent agent for the spinose ear tick, *Otobius meguini*. It retarded reinfestation for at least fifteen days and gave partial protection for about a month.

The common grub, *Hypoderma lineatum*, was destroyed by applying a spray mixture consisting of 7.5 lb. of cubé powder (5% rotenone content) per 100 gal. of water and applied at 400-lb. nozzle pressure. A second treatment, about thirty days after the first, will contribute materially to further grub reduction. On small groups of animals, hand washing is even more effective. It gets about 97 per cent of the grubs.

The highest rate of infection with *Brucella abortus* in both the blood and the urogenital tract was found in the first pregnancy.

Early calving cows were heavier in the fall and usually weaned heavier calves the following year.

Records on 1,625 dairy and beef cows and heifers at Beltsville, Md., show that 52 per cent of these animals calved within twelve months. Of the 781 animals which did not calve within twelve months, 8 per cent had regular estrus cycles. 50

per cent did not come in heat, and 42 per cent had irregular heat periods.

At the close of the year, there were 469 counties qualified as brucellosis-modified accredited areas. These were located in 21 states and were accredited upon the finding of not more than 1 per cent of infection and not more than 5 per cent herd infection. Individual herd accreditations totaled 42,595 and comprised 896,715 cattle.

SHEEP

Of 5,813,000 inspections of sheep, there were 19,955 scabies-infected animals and 25,870 exposed animals which resulted in the supervised dipping of 373,993 sheep. In the cattle scabies-eradication program, 958,998 inspections were made in the field. These disclosed 1,454 infected and 415 exposed animals which were subjected to 4,815 dippings under supervision.

Cobalt deficiency is not serious enough to justify the feeding of cobalt supplements under the conditions which exist at Middlebury, Vt.

The mode of transfer of the fringed tapeworm, *Thysanosoma actinoides*, from one sheep to another still is a mystery.

The entire life cycle of the nodular worms, *Oesophagostomum columbianum* and *Oesophagostomum venulosum*, may be completed in four weeks. The adult worms cause considerable damage in the large intestine, including scouring, when the parasites reach fertile maturity, and the passing of thick mucus streaked with blood as late as fifty-four days after infection.

Filarial dermatitis caused by the migrating larvae of *Elaeophora schneideri* in the arteries and finally to the capillaries of the skin of the head has been reported on sheep on the high mountain ranges of New Mexico, Arizona, and Colorado. Recovery was achieved by injecting intramuscularly in the gluteal muscles (once a week for eight weeks) 35 to 40 cc. of a solution containing tartar emetic 1 Gm., anhydrous glucose 6.4 Gm., in sufficient water to make 100 cc. The treatment is time-consuming but otherwise extremely low in cost (about 15 cents per head).

Intestinal wireworms in large numbers are contributory to, if not a principal cause of, scouring in lambs. The condition leads to unthriftiness and emaciation.

A single treatment with a benzene hexachloride mixture in cold water was effective against infestations of *Psoroptes equi* var. *ovis*. Moreover, it was inexpensive and easy to use and it also controlled lice, keds, and ticks on sheep. Lambs may be slaughtered for food purposes at any time after three weeks following dipping.

When sheep in full fleece were sprayed under 600-lb. pressure, the fleeces were only superficially wet as though they had been streaked half a dozen times from head to tail with a damp sponge.

HORSES

Although 1,223 blood samples were tested for dourine, only four of these were positive, and all four were from stray Mexican horses seized by Customs near El Paso, Texas.

Blood samples from a horse that was a carrier of equine infectious anemia, originally infected in April, 1935, were still infectious in 1949.

Infectious equine encephalomyelitis was at the lowest point reported during the fourteen years that the BAI has maintained a nationwide survey. Only 1,796 cases were reported and the average mortality was 35.5 per cent.

SWINE

Experimental infection of swine with *Oesophagostomum dentatum* and *Oesophagostomum longicaudum* produced inflammation from the fourth to the seventh day. In heavy infections, marked inflammation, bleeding from the intestinal wall, blood in the droppings, and a greatly thickened wall covered with a false membrane, was produced in pigs. For three weeks following infection, the growth of the pigs was only about one-fourth that of the uninfected controls.

Growth retardation in moderately to heavily parasitized pigs occurred during the suckling period. After the pigs reached the weight of 50 lb., they grew approximately as fast as those lightly parasitized, but it took them four to five weeks longer to attain a weight of 225 lb., and they consumed approximately 46 per cent more protein and mineral supplement while reaching that weight.

No live lice were found on pigs for fifty-nine days after they were dipped in a benzene hexachloride suspension containing 0.06 per cent gamma isomer.

Swine tuberculosis, in 95 per cent of all cases, is due to the avian type of the organism.

Frozen pork deteriorates because of the oxidation of fat. Pork stored in vacuum-packed containers and dipped in lard deteriorated less rapidly than when wrapped in cellophane or unprotected.

Hog cholera inspections numbered 42,831 farms of which 1,386 definitely had outbreaks. Post-mortem examinations were made on 1,297 animals and Bureau veterinarians conducted 208 meetings attended by 15,550 persons.

Swine erysipelas control was effective through the administration of the serum-culture method of vaccination to 2,818,361 hogs in 42,074 herds.

POULTRY

In controlling avian pneumoencephalitis (Newcastle disease) live virus vaccine and formalin-inactivated vaccine, when properly used, do not

cause appreciable mortality or undesirable after-effects in 4- to 5-week-old chickens.

The value of the all-pullet flock in tuberculosis control is indicated by the fact that young birds, while susceptible to the disease, do not transmit the infection to swine as older birds do.

Early trials indicate that bacitracin has little promise in the prevention of cecal coccidiosis.

The survival time of the oöcyst of the poultry coccidia, *Eimeria tenella*, was forty-eight weeks in deep shade, forty-one weeks in areas that were shaded or partly shaded. *Eimeria acervulina* survived sixty-six weeks and eighty-six weeks, respectively, under the above conditions, while *Eimeria maxima* survived forty-one weeks regardless of shade.

Borax has little or no value as a coccidiostatic agent. When 0.3 percent solution was used as

drinking water for three days, the birds showed no better weight gains than the inoculated controls. When the concentration was raised to 0.5 per cent, twenty-four or forty-eight hours after exposure, the mortality was prevented, but the birds lost more weight than those receiving the lower concentration of the chemical.

Fumigation with benzene hexachloride did not impart an odor or a taste to eggs laid on the first, second, and third days after application.

Our Veterinary Journals.—To hazard the penalty for boasting, the journals of veterinary medicine published in the United States and Canada are so popular that they have become sources of knowledge in all parts of the world, wherever folk have acquired the habit of reading. Consequently, the bragging is but currency for the record of the period. While World War II "stopped cold" useful enterprise in the war-torn countries, we carried on unmolested, and willingly share our good fortune with the world.

Summer weather is ideal in Miami
Beach—You'll enjoy the cool
August evenings.

AVMA Annual Meeting in Miami Beach—August 21-24, 1950



—Miami Beach News Bureau

A novel sight in Miami Beach is the Lincoln Lane off-street parking area, located between the new air-conditioned municipal auditorium where the AVMA convention program will be presented, and the Lincoln Road fashion center. The lane provides parking space for nearly 1,000 automobiles. Also shown are some of the hotels along the ocean front.

State and Territorial Health Officers Recognize Current and Potential Animal-Human Health Dangers

L. R. DAVENPORT, D.V.M.

Springfield, Illinois

PUBLIC HEALTH officials took their first specific action toward eliminating some common dangers to animal and human health at the October, 1949, meeting of the State and Territorial Health Officers' Association in Washington, D.C. The Association adopted the following report and resolution offered by Dr. Roland R. Cross, director of the Illinois Department of Public Health:

Article XIII^a—Due to the shortage of veterinarians for retesting cattle in certain areas of the country, bovine tuberculosis is becoming more widespread and there are more frequent reports of human extrapulmonary tuberculosis. The Committee recommends that:

a) The livestock sanitary officials be requested to require the re-accreditation of areas where testing has not been widely practiced in recent years and that all cattle moving intra- and interstate be required to have evidence of recent negative tests.

b) All milk used for human or animal food be pasteurized or boiled.

c) All states and territories enact state pasteurization regulations.

d) All local health departments report and identify to the State Health Department any evidence of tuberculosis in animals slaughtered under their jurisdiction.

Article XIV^a—In the past year, a new diagnostic aid has become available for the determination of disease in lactating cattle, known as the Brucella ring test. To insure its accuracy and widespread acceptance, it is necessary that all antigen used for the test be standardized and made available to health and livestock officials responsible for human and animal disease and milk-sanitation control so as to aid in brucellosis control and prevent any abuse of the test.

THEREFORE, BE IT RESOLVED, That the U.S. Department of Agriculture, Bureau of Animal Industry, prepare and standardize a Brucella ring test antigen to be distributed only to official health and livestock sanitary officials where it will be used under the supervision of qualified

veterinarians engaged in public health, milk sanitation, and livestock disease-control work.

BE IT FURTHER RESOLVED, That the Brucella ring test antigen be distributed by the Veterinary Public Health Division, Communicable Disease Center, through official state health agencies. (Received and approved by the Association, Annual Conference, Washington, D.C., October, 1949).

It is, indeed, gratifying to note that the directors of the various state and territorial departments of public health are taking an active interest in the prevention and elimination of animal diseases that endanger the health of man. It is, furthermore, significant that the attention and action of these men is focused upon the necessity for greater effort toward the elimination of those common animal-human disease entities which, for some reason, have been permitted to endure and threaten the health of both animals and man.

Of greatest significance, perhaps, is the fact that these men of public health, as evidenced by their recent action, appreciate the probable development of animal-human disease potentials and the need for the development, protection, and expeditious administration of measures toward the more efficient elimination of animal diseases, both currently and potentially dangerous to the public health.

Such critical appraisal by public health officials of existing and potential animal-human health dangers and of the measures to be employed in their elimination should serve not only to stimulate physicians, public health personnel, and the public to recognize, investigate, and cooperate in the elimination of animal diseases dangerous to the public health, but also to spur animal disease-control officials, veterinarians, and livestock men to appraise and eliminate the diseases of animals dangerous to the public economy.

This action by state and territorial health officials opens the road to future cooperation between animal disease-control and public health officials of the various states and territories.

Consultant in veterinary medicine, Illinois Department of Public Health, Springfield.

^aArticles XIII and XIV above included in the business of the Association of State and Territorial Health Officers (Report of Infectious Disease Committee), annual conference, Washington, D. C., October, 1949.

SURGERY & OBSTETRICS

AND PROBLEMS OF BREEDING

Postparturient Problems in Dairy Cattle

J. T. SCHWAB, D.V.M.

Madison, Wisconsin

THIS SUBJECT covers a large field and it is difficult to know just what interval after parturition should be included. Some of the complications we think are important are hypocalcemia or milk fever, ketosis or acetonemia, retained placenta, everted uterus or prolapse, pyelonephritis, albuminuria, pyometra or metritis, mastitis, and traumatic pericarditis, with just a word about obturator paralysis.

Hypocalcemia, parturient paresis, or milk fever is our most frequent problem. It may be complicated by, or confused with, ketosis, albuminuria, and/or posterior or obturator paralysis caused by pressure, during parturition, on the obturator nerves within the pelvis. The cow, unable to rise because of obturator paralysis, is usually bright, alert, eats and drinks; in fact, she does everything but get up.

Uncomplicated milk fever responds very nicely to an intravenous injection of calcium gluconate with or without the addition of phosphorus and/or magnesium. We inject about 350 cc. into the blood stream and 150 cc. subcutaneously in the lower third of the neck. If the site is well massaged and the injection not made into the brisket, there is only a slight swelling which is resorbed within a few days. This amount, subcutaneously, helps to keep up the calcium level for several days and very seldom results in relapse. Some few years ago, calcium gluconate was injected intraperitoneally in a few cases. The response was much slower and unsatisfactory.

Because milk fever is so often complicated by ketosis or acetonemia, one should never neglect to make a urine test for the presence of ketone bodies and also treat

the patient for ketosis if necessary. This will save many a trip to treat the cow a second or even a third time, because of a relapse or failure to recover. I recall a cow that was treated three times for milk fever with no response. She was then treated once for ketosis and made an uneventful recovery. At the AVMA meeting in Boston, Craige and Stoll presented a paper on the alkalosis concept of milk fever. They reported that injecting calcium gluconate solution also acidified the blood which corrected the alkalosis and, with the addition of chlor-ethamine orally, brought about a recovery and prevented a relapse. This was a highly technical paper, as they checked the blood calcium level before injecting calcium gluconate and again twenty-four and forty-eight hours later. They also checked the urine for ketones. Craige and Stoll state¹ "The physiological changes of these two diseases tend to be mutually antagonistic; or to apply the interpretation suggested in the alkalosis concept, ketosis springs from a physiologic attempt to prevent hypocalcemia. When this mechanism is only partially successful, complicated milk fever results, complete prevention of hypocalcemia may lead to typical acetonemia."

KETOSIS OR ACETONEMIA

Ketosis is a condition brought about by a faulty carbohydrate or fat metabolism and the system becomes surcharged with ketone bodies or acetone. Ketones are necessary to kick along carbohydrate metabolism and, in turn, fat metabolism. A certain amount in the blood is not only beneficial but necessary. Something goes wrong, the carbohydrate level goes down, and more ketone bodies are thrown into

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¹Craige, A. H. Jr., and Stoll, I. V.: Milk Fever (Parturient Paresis) as a Manifestation of Alkalosis. *Am. J. Vet. Res.*, 8, (1947): 168-172.

the blood stream to take the place of the failing carbohydrates in an effort to metabolize the fats. Soon the blood stream and the whole animal economy become saturated with these ketones and we have the syndrome of ketosis.

The clinical picture of ketosis varies greatly. Animals are observed in a highly nervous state or in a coma—as in milk fever or hypocalcemia. Some may resemble a toxemia while others suggest a septicemia involving the central nervous system. Ketosis is sometimes complicated with milk fever; thus, these cases do not respond to the classical treatment but will recover when treated for ketosis. Ketosis occurs at all times of the year, more often a few days to a few weeks after freshening, and more often in fat, high-producing cows. In one herd, there were 8 cases of ketosis in one day and 5 in another herd of about 300.

Shaw of the University of Maryland built up a good blood picture. Blood samples were drawn from cows at frequent intervals for several weeks before and after freshening to determine the blood sugar level. Normal is about 40 mg./100 cc. or higher. Some developed ketosis and he was able to get blood values for calcium, ketones, and sugar. As ketosis developed, the sugar level went down and the ketone content went up. The liver is the principal place for the storage of animal starches or sugars in the form of glycogen. The starches are converted into sugar and paid out as the blood calls for them. This sugar must be replaced soon after it is used. The liver probably attempts to make up for the loss of glycogen by using fats. Consequently, ketones or acetone bodies are formed, with resultant ketosis.

There is a higher percentage of ketosis in the better-fed herds, even though molasses is fed in liberal amounts. More than twenty-five years ago, cottonseed meal could be fed to a fat cow, that is, one fitted for test, to produce a ketosis-like condition at any time, while in a thin cow, this condition could not be produced.

A similar condition, called pregnancy disease, occurs in sheep. It is unsatisfactory to treat but can be prevented if the feed of the pregnant ewe is increased regularly to lambing time and then not decreased after lambing. Now the question arises as to whether we can prevent ketosis in the dairy cow by the same management. It is usual to decrease the amount of feed and lighten the ration for a week or ten days before

freshening and then feed them lightly for several days after. This is probably the most critical period. However, is this plan of feeding easier on the udder and does it prevent cake or congestion and help to prevent mastitis as believed? I am not so sure that it does. Let us try starting some fitting cows at a lower level and keep increasing the feed right up to calving time and not decrease it after calving.

The longer the condition exists, the more difficult it is to bring about recovery, so early diagnosis is important. We are all familiar with the usual picture and diagnosis: a peculiar sweetish odor on the breath and in the milk, rough coat, a drop in milk flow and feed consumption. One 4-year-old cow was apparently normal but would not eat more than 14 lb. of grain and did not milk over 60 lb. As a 3-year-old she had eaten up to 24 lb. of grain and produced 85 lb. of milk. She was treated only once after the urine test showed positive, but her grain consumption increased materially and she produced up to 100 lb. of milk. Sometimes the Rothera or Ross test is positive on cows that have ketosis as a secondary condition as a result of acute mastitis, metritis, gastritis, peritonitis, or pericarditis.

The classic treatment is beneficial as a supportive and as a detoxifier but does not correct the primary trouble. One should not depend on the urine test alone, but should make a careful examination. We are all familiar with the treatment: dextrose or glucose intravenously, giving chloral and corn syrup (molasses or cane sugar may be substituted if necessary) three times a day. Vitamin A is claimed to have brought about a cure. However Hayden, Fincher *et al.* report (*Cornell Vet.*, Jan., 1946) the treatment of 10 cases of ketosis, 6 of them uncomplicated, with massive doses of vitamin A (1 received as high as 18.5 million international units) with no cures. Shaw of Maryland states that vitamin A is not necessary for recovery and that there is no relation between the blood glucose and acetone bodies after calving and the level of protein, carbohydrates, or fats in the ration.

We have given 250,000 units of vitamin A twice a day for several days with no apparent clinical improvement until we gave dextrose intravenously.

Roepke of Minnesota says this condition might better be called hypoglycemia. More

than 43 per cent of several hundred cows examined at South St. Paul slaughtering plants had fatty livers.

Vitamin B complex sometimes stimulates the appetite. We must get these cows to eating before we can expect recovery. It is possible that hormones may have some

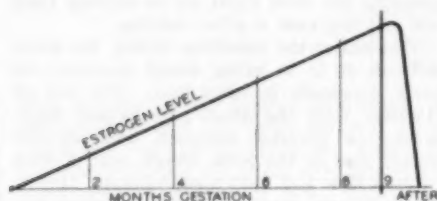


Fig. 1—The estrogen level in pregnancy.

value. In women, the estrogen level increases as pregnancy advances. This may play a part in ketosis, hypoglycemia, posterior paralysis, etc. Hypoglycemia in women can be corrected by eating one or more candy bars.

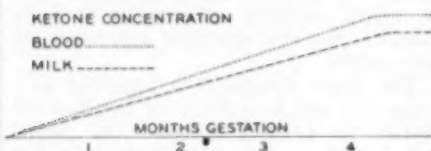


Fig. 2—Concentration of ketones in blood and milk during gestation.

The Ross test for ketones in the urine does not check with the amount in the blood or milk. There may be a high concentration in the urine and a low concentration in the blood. The concentrations in blood and milk usually follow a similar pattern. The color in milk is not so clear as it is in urine, as milk is buffered. Use two tablets or capsules of sodium nitro-prusside in milk instead of one as in urine. Use the same amount of milk and ammonia.

We have some cobalt-deficient areas in the United States. In these areas, the addition of cobalt preparations has brought about some spectacular recoveries of ketosis cases. These recoveries did not occur until cobalt was used. Some veterinarians have given succinic acid to block or prevent the formation of ketones. This was tried by Sorenson of Wisconsin without any apparent beneficial results.

Dye and McCandless of the Department of Physiology, New York State Veterinary College, have stated in the October, 1948, *Cornell Veterinarian* that "The severity of ketosis is determined primarily by the level of fat metabolism and is inversely proportional to the level of carbohydrate metabolism." Ketosis or acetonemia in cattle is, therefore, a clinical condition brought about by metabolic disturbances.

Hofflund and Hedstrom of the Royal Veterinary College of Stockholm, Sweden, have published in the October, 1948, *Cornell Veterinarian* some very significant facts. These authors have come to the conclusion, by means of continuous investigations in rumen digestion and in the different functions of the various rumen microorganisms, that disturbances in rumen digestion are predisposing factors in acetonemia.

The greatest function of the bacteria is carbohydrate decomposition, particularly cellulose fermentation. Thus, they predominate with a cellulose-rich ration. However, for optimal activity, the presence of a small quantity of sugar and protein, together with minerals, is required. Protein, or a nitrogenous substance, is necessary for all living things including bacteria. If too great a quantity of sugar or starch is supplied in the ration, these substances will be broken down with a resulting inhibition of cellulose digestion. As sugar and starch are very rapidly fermented, an overproduction of acids can occur, and there can be an abnormal decrease in the pH value.

Cellulose digestion is likewise retarded by an excess of protein and the amount of sugar production in the rumen is decreased. Because of this, the increased sugar requirement brought about by the greatly increased milk production can not be supplied in a normal manner and, therefore, fat must be mobilized from the fat depots. This results in an increased acetone production.

Because of the increased sugar requirement brought about by the greatly increased milk production, the principal part of the sugar must be prepared in the rumen by fermentation of cellulose. Accordingly one of the principal factors for the prevention of acetonemia is that the cellulose-fermenting microorganisms have optimal living conditions. More concentrate can certainly be fed if the hay is of high quality with large numbers of microorganisms and readily soluble carbohydrates, than if the hay is inferior.

RETAINED PLACENTA

During pregnancy, the placenta is virtually a part of the fetus from which it is developed and from which it derives its circulation. Soon after parturition and the severing of the umbilical cord, it dies and becomes a foreign body. Decomposition soon begins, and products of this decomposition are readily absorbed into the system through the maternal placenta. This absorption is facilitated because of the intimate contact with the endometrium which has a much enhanced circulation, adequate to absorb the products of fetal metabolism. If curious about the endometrium, examine the fetal placenta, for it is a mirror of the endometrium. Retained placenta is of great economic importance. In the normal, healthy uterus, the fetal membranes come away in a matter of a few hours after parturition. If the membranes are not expelled, they should be removed manually. We do not attempt to remove them for twenty-four to thirty-six hours unless the cow is visibly toxic. Then we try to remove them in twenty-four hours or even less, if it can be done. There are times when more harm is done by removing the membranes than by leaving them alone.

Take hold of each cotyledon or caruncle, get a thumb or finger between the fetal membrane and the maternal placenta and separate them, leaving no shreds on the cotyledons. This is facilitated by putting some traction on the membranes to lift the horns and bring the tips within reach. If there is any amount of hemorrhage, leave the membranes alone, insert several capsules or other suitable antiseptic, and return in about forty-eight hours when they can usually be removed without much difficulty. If it appears that the cervix is starting to contract, we may inject 25 or 30 mg. of stilbestrol on the first visit. This tends to keep the cervix open for about forty-eight hours longer. We do not use stilbestrol often because of the fact that we may get many nymphomaniacs. Where the client uses it regularly on all cases, we get a good many calls to correct that condition.

If there is fluid in the uterus, we drain or siphon it out with a hose. This is important as the uterus is large and parietic and unable to empty itself. Each pint of fluid weighs approximately 1 lb., which further retards involution. The fluids are retained and may lead to pyometra or metritis. We

also use cotton dampened in an antiseptic solution to blot up the excessive fluids.

EVERTED UTERUS

We never attempt to replace an everted uterus without epidural or caudal anesthesia. We use 20 or 25 cc. of 1 per cent procaine hydrochloride solution or other suitable anesthetic, to prevent straining. The large amount is used because it infiltrates better and anesthesia lasts longer. If placental membranes have not become detached, remove them, suture any tears, control hemorrhage, and clean thoroughly. We cover the uterus with a good antiseptic powder which makes it easier to replace. Support the uterus on a large towel held by an assistant on each side. Replace the cervix first, then the body, and finally the horns. We use a wine bottle, large end forward, to straighten the horns, because if left partly telescoped there is poor circulation, pain, and the entire uterus may be everted again. We always give 2 or 3 No. 10 capsules of chloral *per os* as a sedative, make the animal comfortable, and let her rest. It is desirable to have the patient sleep for a few hours or until most of the irritation has subsided.

If there is good caudal anesthesia and the chloral is given it is not necessary to suture the vulva. However, it has a good psychological effect on your client, and if the uterus should be everted again you at least have not laid yourself open to criticism.

PYELONEPHRITIS

In pyelonephritis, the temperature may or may not be elevated, the appetite may be impaired or anorexia may be complete. The urine may be only pink from dissolved hemoglobin or it may contain blood and be quite red, be cloudy from pus and tissue shreds, and may contain sediment. We often find blood clots about the size of the lead in a pencil. These clots are formed in the ureter and when it becomes occluded there is a back pressure on the kidney which is painful and the cow acts like a colicky horse. She will step from side to side or dance and kick at the abdomen. After these clots are passed into the bladder, the cow is quite comfortable until more clots are formed. There is also frequent micturition and only small amounts are passed.

Prognosis is unpredictable and should be

guarded. The animal loses weight rapidly and becomes dehydrated. Treatment is usually unsuccessful, and the victim winds up at a slaughtering or rendering plant. Some cases go on for years with infrequent attacks. A valuable cow may be given large doses of penicillin in oil and beeswax. Take the cow off test and do not feed her any high protein feed but give her all the hay she will eat. Fox of The Ohio State University has reported some cases of pyelonephritis treated with penicillin. Fincher of Cornell has treated some with massive doses, 1 million units of penicillin once daily. We have tried the sulfonamides and methenamine with unsatisfactory results. Our prognosis is always unfavorable and we advise slaughter.

ALBUMINURIA

Albuminuria is sometimes a complication of milk fever or may be confused with it. These cases usually eat and drink but can not get up. They do not respond to calcium therapy. One can diagnose albuminuria by making a urine test. Take 5 cc. of urine free from foreign matter, add 15 to 20 drops of sulfasalicylic acid. A cloudy gray or white formation is positive.

We give these animals 12 to 18 eggs, mixed with water or milk, twice on the first day and 6 to 9 eggs on the second day. Sometimes we give 2 to 4 oz. of egg powder dissolved in skim milk for a few days.

PYOMETRA AND METRITIS

Pyometra or metritis can often be diagnosed by a pus discharge from the vulva. If there is no pus discharge and the cow remains in anestrus, a rectal examination will disclose a uterus greatly enlarged with pus. Evacuate the pus with a return-flow catheter inserted through the cervix. After drawing off all of the pus, irrigate the uterus with 2 per cent Lugol's solution using a gallon or more. We never irrigate a uterus until it is so small that we can reach the ends of the horns and massage most of the fluid out. If the uterus is irrigated too soon after freshening, we sometimes set up a severe irritation of the endometrium and the uterine wall becomes thickened and hard and may remain in this condition for several weeks.

After irrigating the uterus and massaging out the fluid, inject 100,000, 200,000 or 300,000 units of penicillin in distilled water

or in 6 to 8 oz. of mineral oil. Irrigate every fourth or fifth day because if the interval is a week or more, we make no progress.

We have also used up to 40 mg. of stilbestrol on some of these cases with good results. Here again we are concerned because of nymphomania. If the ovaries can be reached, try to remove a corpus luteum. Old corpora are hard to remove, and vigorous massage or excessive pressure may start a serious hemorrhage. We have lost several cows from hemorrhage and are always sure to warn the client.

TRAUMATIC PERICARDITIS

In our practice, about 85 per cent of all traumatic pericarditis cases occur within a few months after parturition. The puncture probably occurs during the expulsion of the fetus. To assist in expelling the fetus, the cow fills the lungs, which balloons the diaphragm into or toward the abdominal cavity; next, the glottis is closed and the abdominal muscles contract. This creates an enormous pressure and the sharp nail, wire, or other object can be pushed easily through the wall of the reticulum.

Early diagnosis is difficult but important. The longer the condition exists, the more difficult and dangerous the surgery becomes or the less the animal brings at slaughter.

A leucocyte count helps in making an early diagnosis. In normal bovine blood, the white cells are about 60 per cent lymphocytes and 30 per cent neutrophils. In traumatic pericarditis, the lymphocytes may run 12 to 15 thousand more, and the percentage of the neutrophils may be doubled. Normal red cells may be about $5\frac{1}{2}$ to 6 million per cmm.; white cells, $4\frac{1}{2}$ to 7 thousand per cmm. A practical way to get a blood count is to carry some ordinary test tubes, such as we use for collecting blood samples, which have been prepared before hand by sterilizing and then placing $\frac{1}{2}$ cc. of 2 per cent sodium citrate in each tube. Fill the tube with blood, agitate, and send to your laboratory at once. Surgery is the only known treatment.

In cases of swine dystocia, when it is impossible to remove the last fetus manually, the injection of 1 or 2 quarts of mineral oil into the uterus will often cause the remaining pig to be expelled without serious damage to the dam.—A. G. Krause, D.V.M., Iowa.

A Treatment for Shy Breeding Cows

E. A. WOELFFER, D.V.M.

Oconomowoc, Wisconsin

BREEDING records of shy breeding cows in four large herds of purebred Holstein-Friesians were analyzed to ascertain the value of uterine injections. This is a report of the analysis. The herds consisted of valuable, high-producing cattle that were generally healthy and free of brucellosis. They were well fed and cared for, and conditions in the various herds were about as uniform and adequate as was possible to obtain under practical conditions.

At the beginning of the period covered by the study, uterine irrigations and/or injections were employed sparingly. The treatments were confined largely to cows showing clinical evidence of metritis. When it appeared that such treatments produced favorable results, they were employed to include many of the cows that required hormone and mechanical treatments, as well as those in which pathology appeared to be limited to mild infection of the cervix and uterus.

The records used covered about ten months and only females classified as "problem" cows were included. Excluded were cows that had less than four services, except in 8 cases with endocrine disturbances or pathology. (This refers to the pretreatment period. See table 1.) Also excluded were cows that had not been bred long enough to determine pregnancy, and 3 aged cows with considerable pathology that had been bred numerous times before and after treatments.

UNTREATED VS TREATED COWS

The cows were divided into two groups, untreated and treated. The term "treated" refers to the introduction of antiseptics into the horns of the uterus. The untreated group consisted of 75 females having a maximum of eight (1 cow had 9) and/or a minimum of four services. For purposes of comparison with the treated group, the services were divided into two periods as shown in the table. There were 29 in the treated group, 26 of which averaged four unsuccessful services before treatment. Three cows with long but interesting his-

tories were included in the group. Two had been bred 18 times and one 19 times before treatment. These 3 cows were responsible for the increase from four to 7.6 services (see table). The total number of females involved was 104. They ranged in age from 2 to 16 years.

It will be noted that 18 out of 75 (24%) of the untreated cows conceived after an average of four services. After 2.5 addi-



Dr. E. A. Woelffer (right) showing type of catheter used and syringe loaded for prompt injection upon insertion of the instrument.

tional services, 13 (22%) of the 57 cows that were still open conceived. In the treated group, 18 of the 29 conceived after 2.6 services following treatment. The records indicate that the treated cows had a 40 per cent better conception rate than the untreated cows, and that the results substantiate the experience and previous reports by other veterinarians on this form of treatment.

The improvement in conception in the treated cows may have additional signifi-

cance when it is considered that 15 (51.7%) of the treated cows were first treated for cystic conditions, irregular heats, etc. Five of the 15 were among those that did not conceive. Two of the group had a small quantity of chocolate-colored fluid in the horns, and each was irrigated once with a

records—the best over 900 lb. of butterfat. Furthermore, the cow had a number of closely related paternal and maternal female relatives, all with good records for production and reproduction. Drawing conclusions from the response of one cow is not justified; however, evidence in this case seems

TABLE 1.—A Comparison of Results (Pregnancies) of Untreated and Treated (Uterine Injections) in Cows

Cows (No.)	Pretreatment period				Treatments	Post-treatment period			
	Services ave. No.	Preg- nant	Not preg.	Pregn- ant (%)		Add'l service	Preg- nant	Not preg.	Pregn- ant (%)
75	4.0	18	57	24	none	2.5	15	44	22
29	6.7	none	29	0	yes	2.6	18	11	62

return flow catheter previous to the injection of the antiseptic. Both conceived on the second service following the injections. Three of the untreated group were treated: 1 for retention of a corpus luteum, the other 2 for cystic ovaries. Two conceived, 1 (with cystic ovaries) did not.

Only Artificial Inseminations Used.—The cows were all artificially inseminated to 5 bulls. Two of the bulls were proved-for-production sires, which had relatively low conception rates. The prolonged use of these 2 bulls accounts, in part at least, for the generally low conception rate in the herds during the period of this report. The services by the 5 bulls were distributed with remarkable evenness through the herds, and this fact drastically reduces the probability of error from this source.

AN INTERESTING CASE

Three cows had been serviced 18, 18, and 19 times before uterine injections were instituted. The cows conceived after 4, 3, and 2 services, respectively, following treatment. The first 2 have not freshened following treatment. The third dropped a healthy, vigorous heifer calf at 8 years of age. The cow milked heavily on official test, and ten days after freshening she was classified excellent. Previous to the extended "open" period, this cow aborted a 5-month fetus. Agglutination test for brucellosis was negative, but tests for *Vibrio foetus* or other attempts to determine the cause of the abortion were not made.

This cow's dam was still in one of the herds at nearly 16 years of age, with impressive records of production and reproduction. The cow in question also had an 11-year-old sister with a remarkable breeding record and with several good production

to point to a local disturbance rather than to a genetic influence or to a nutritional inadequacy as the probable cause of infertility and that the local treatment sufficiently stimulated the tissues to overcome the pathological condition.

Treatment.—Injections were made with a small-bore metal catheter five to eighteen days following estrus. The injected material was permitted to remain in the uterine horns and, in practically all cases, the cows were bred on the next regular heat. In so far as the observations covered by this report are concerned, two antiseptics were employed separately: Lugol's solution of iodine (3.5%) and an aqueous solution of tyrothricin (Wallace). The usual dose was approximately 100 cc. into each horn. Except for 2 individuals, all treated cows received a single injection. The 2 exceptions were given two injections within a week. Both conceived promptly.

Lugol's solution was administered to 10 of the 29 cows, while 19 were injected with tyrothricin. Five (50%) of those given Lugol's solution conceived, whereas 13 out of 19 (68.4%) of those given tyrothricin became pregnant. Considerable straining followed the use of Lugol's solution. For this reason, its use has been discontinued. In its place, penicillin and other antibiotics are being tried.

SUMMARY

Records of 104 problem cows were examined and breeding efficiencies of untreated and treated cows were compared. The 75 untreated cows revealed a conception rate of 22 per cent, whereas 62 per cent of the 29 treated cows (uterine injections) in the same herds conceived.

Lugol's solution (3.5%) and aqueous

solution of tyrothricin were used as anti-septics and injected into uteri of problem cows in a limited number of cases. The tyrothricin solution appeared to be slightly more effective and caused less straining than the iodine solution.

Extraction of Wolf Teeth

Whether wolf teeth of horses are harmful is less important in clinical work than the fact that trainers, equestrians, jockeys, and drivers believe they are and want them extracted. That the delicate tactile sense of the structures comprising the seat of the bit is a thing to be used and preserved is more than a hobby in the finer bracket of horsemanship. Who but the winners of races and blue ribbons is qualified to contradict? The bit is a medium of communication between rider and mount.

The least expected of the doctor is that wolf teeth be extracted whole. If fracture is of no material consequence, it is always a disappointment to all concerned. That the fang of a broken wolf tooth quickly blends with its surroundings and covers over with normal gingival tissue may not be appreciated by fastidious horsemen and at least needs embarrassing explanation.

To assuredly extract a wolf tooth whole, it must first be loosened. Its structure is too delicate to resist a direct pull, and lateral swinging of the jaw throws the forceps off its vertical axis. That accident can be universally prevented by using the all but forgotten wolf tooth separator designed many years ago by C. D. House. When it is wedged between this tooth and the adjacent premolar to crack the alveolus, the danger of fracture is eliminated. The wolf tooth virtually falls out whole and unbroken. The article titled "Extraction of Wolf Teeth in Thoroughbred Horses" in the *Veterinary Record* (Sept. 11, 1948) and one by the Jockey Club of South Africa quoted in the *Journal of the South African Veterinary Medical Association* are reminders that this surplus tooth of the horse is not as entirely forgotten as the archaic theory of its relation to the eyesight.

Bacterial growth in diluted semen was controlled most effectively with a combination of penicillin and streptomycin.—J. O. Almqvist, M.S., Pennsylvania.

Suturator

Suturator is the name of a surgical stitching instrument designed and built by R. E. Brown, a junior veterinary student at Michigan State College. The instrument, made of nonmagnetic stainless steel, weighs 9 oz. The needles used are a special surgical type with two thread eyes in the piercing end. The bobbin will hold 30 yards of suture material, white, quilting cotton thread being commonly used. The needle may be set at any angle to the shank, enabling the operator to suture where it would ordinarily be difficult to reach. A variety of interrupted and continuous stitches can be used with the instrument, and the supply of suture material required for each stitch is controlled by a thread lock plunger.

The instrument can be taken apart for cleaning, and may be sterilized before use after having been threaded with the desired suture material.—MSC Vet., Spring-Summer, 1949.

Prenatal Helminthiasis in Dogs

Rare as transplacental infections are known to be, worm parasites surmount the barrier between mother and fetus in dogs, in rare instances. Ever since 1911, when Japanese investigators discovered *Schistosoma* in newborn pups, other authorities were able to confirm transplacental passage of *Belascaris marginata*, *Toxascaris canis*, and *Ancylostoma caninum*. Lope M. Yutuc, College of Veterinary Science, University of the Philippines, reconfirms this accident in respect to these three helminths in the *Journal of Parasitology* of August, 1949. Pregestation infection of the bitches was proved by ridding them of worms prior to parturition and care taken to eliminate postnatal infection of the pups. This research affirms the work of the same genre by J. E. Shillinger and Eloise Cram in this country in 1923 (*J.A.V.M.A.*).

Six bulls infected with *Trichomonas foetus* were treated with sodium iodide. Five doses were given intravenously at intervals of forty-eight hours. Each dose consisted of 5 Gm. of sodium iodide, for every 100 lb. of body weight, dissolved in sterile, distilled water. Four bulls were cured by this treatment.—B. B. Morgan, Ph.D., Wisconsin.

Ear Trimming

H. E. JENSEN, D.V.M.

Cleveland, Ohio

AFTER GRADUATION, I started a mixed practice in a city of 30,000. During my four and one-half years of practice there, I never gained the courage to do an ear trim, although I had watched many done. It seemed to be a painstaking and nerve-racking procedure in which a slip was a lasting monument to the surgeon's discredit. Consequently, I referred all my ear trims to another veterinarian, which often meant that the other veterinarian also did the immunizing and worming of these pups.

After spending a year with Dr. M. L. Morris at New Brunswick, N.J., getting more small animal and hospital training, I purchased a hospital in Cleveland. Realizing that I would have to become proficient at ear trimming, I asked who did the trimming on some of the best dogs in the East. I learned that it was a layman. Through some dog breeders, I finally received an invitation from the layman to watch him trim the ears of a litter of Miniature Doberman Pinschers. He used an old German instrument, a type of clamp with a sliding knife. He adjusted the clamp on the ear, pulled the blade, and the ear was trimmed. He repeated the procedure on the other ear and the two pieces of ear taken off matched perfectly. The next two dogs he did in slow motion to show me the technique of the operation. He then let me do the remaining 3 dogs of the litter. I was impressed by the ease with which a novice could get perfect symmetry as well as the proper curve to the ears. With the help of an engineer friend, I designed a similar instrument for my own use. During the past two years, we have changed it to make it handier and to suit my needs more closely.

There are other things to consider besides getting the proper curve to the ear. For instance, we prefer to do all breeds at 10 weeks of age except Boston Terriers, which we do after 6 months. Moreover, the condition of the patient is of utmost im-

portance. We refuse to trim any dog which is not in top physical condition or which shows evidence of rickets or parasitism. In these cases, we treat the conditions and send the dogs home on P/D (Hill's prescription ration) for two weeks. At the end of this time, if the owner has followed the instructions, the dog is usually ready to have his ears trimmed.

The length of the ears also presents a problem. The best way to familiarize one's self with the proper length is to attend a few dog shows and study the ears on the various breeds. On Doberman Pinschers, Boxers, and Great Danes, a rule of thumb is that when the ear is laid flat on the top of the head without pulling it, the tape marker, as in figure 1, should be put slightly better than half way across the head. The marker on Boston Terriers is usually placed as high as possible on the ear (fig. 1).

Dr. C. Bild of Miami has his own rule of thumb, which we believe is even more accurate than the above and which we have adopted. When the ear is pulled forward with very slight tension, the marker on the ear should come to the inner canthus of the eye.

TECHNIQUE OF THE OPERATION

Perform the operation under general anesthesia. The injection of adrenalin solution along the line of incision before operating reduces hemorrhage to a few drops. Mark the ears at the desired height with pieces of tape (fig. 1). For safety (in case tape should slip) nick through the tape into the ear with a pair of scissors.

Slip the ear between the jaws of the trimmer as close to the head as possible (fig. 2).

With one hand, apply steady pressure (fig. 3) on the jaws of the trimmer and hold the trimmer in place at the base of the ear, close to the head. With the other hand, grasp the tip of the ear and pull very tightly to be sure that there are no wrinkles in the ear. This is the only chance of error. Pull the ear so that the tape shows between the two sides of the upper jaw of the trimmer.

Presented before the Section on Small Animals, Eighty-Sixth Annual Meeting, American Veterinary Medical Association, Detroit, Mich., July 11-14, 1949.



Fig. 1—Mark the ears at the desired height with pieces of tape.



Fig. 3—With one hand, apply steady pressure on the jaws of the trimmer; with the other hand, grasp the tip of the ear and pull tightly to eliminate wrinkles.

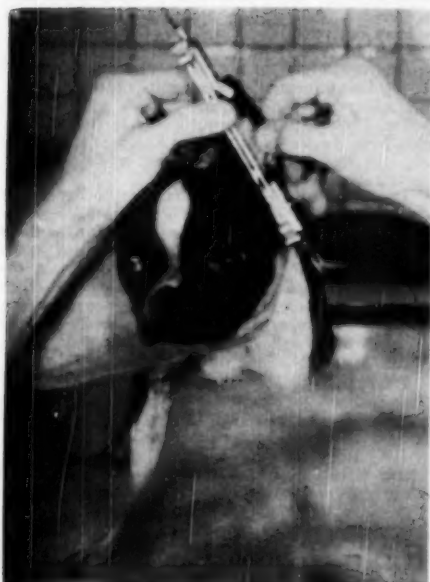


Fig. 2—Slip the ear between the jaws of the trimmer.

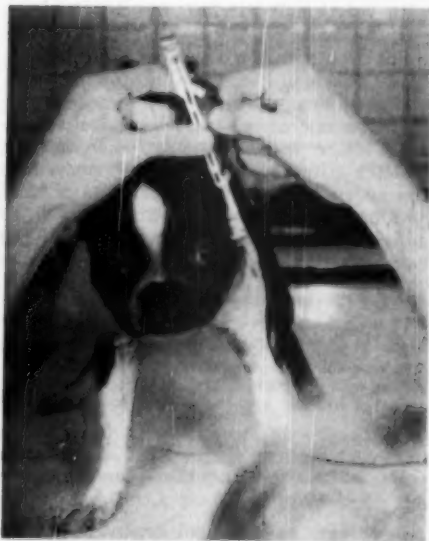


Fig. 4—Grasp the knife handle and pull out with a quick, firm stroke.

If more curve is desired, it can easily be had by pulling on the middle of the ear (fig. 4) but still holding top and bottom in the proper positions. Next, grasp the knife handle and pull out with a quick, firm

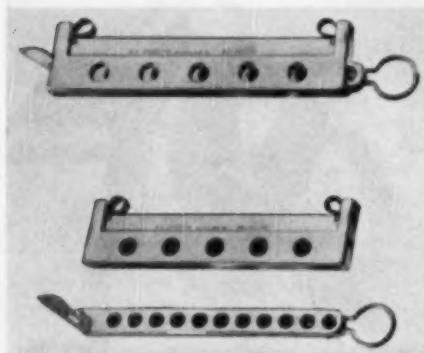


Fig. 5—Ear trimmer developed by the author, showing opened and closed.

stroke. There will be a little tip of cartilage at the very base of the ear, clip this off with scissors to blend the ear into the head.

Suture the ear with a continuous suture using a 5-0 eye suture with an attached atraumatic needle. After suturing the ears with very small stitches, you may wish to put the ears of Doberman Pinschers or Great Danes up on supports. For Miniature Doberman Pinschers, Boston Terriers, and most Boxers, this is seldom necessary.

If the operation has been done aseptically, there will be first-intention healing and the stitches can usually be removed on the seventh or eighth day. This method eliminates soupy, runny ears, as well as adhesions which must be pulled out of the ear every day or so to prevent wrinkling.

DISCUSSION

QUESTION: How about Great Danes?

DR. JENSEN: They work out very nicely. They are cut quite long. By pulling the ears in the middle, as with the Boston Terriers, a nice curve results. I do not like the tips on the ears, so I do not put them on.

QUESTION: How many ears do you trim with one blade?

DR. JENSEN: Eight sets of ears, using a replaceable Bard-Parker blade.

DR. G. H. GILBERT (Arvada, Colo.): How much epinephrine do you use in each ear, and is the Boxer the only dog in which the ear is held up with gauze?

DR. JENSEN: A pup about 10 weeks old takes about 1 cc. of 1:1,000 solution of epinephrine in

each ear. I use a 2-cc. syringe, and there is usually a little left over.

I use the gauze pack on any dog that needs it. Many do not need it. On some Doberman Pinschers, I also suture the ear through the middle, with gauze packs between, and leave them up for five or six days.

DR. FRANCIS CANDLIN (Denver, Colo.): Do you experience any systemic reaction from that much epinephrine?

DR. JENSEN: I have had no indication of any systemic reaction.

DR. CANDLIN: If you give that much to a dog not under anesthesia, you will see a decided cardiac reaction.

DR. JENSEN: I realize that. I have had no reaction.

DR. DUANE KOSHT (Grand Rapids, Mich.): I have used 5 cc. of the same concentration many times with no adverse effects.

DR. F. W. MILKE (Milwaukee, Wis.): Will you elaborate on the suturing?

DR. JENSEN: For suturing, I use a 5-0 anacup eye suture which does not absorb body fluids. It has an attached atraumatic needle which gives a nice clean cut through the skin. It is easy to work with.

I start at the top and work to the bottom, but that is a matter of preference. I make the stitches very close together to get a smooth, first-intention healing. This eliminates crinkling of the ear when healing.

Ordinarily, we have no trouble at all. With Boxers, Miniature Doberman Pinschers, and Boston Terriers, we take off the gauze on the second day and just leave the ears alone after that. We send them home in about six days. On the tenth or twelfth day, when we take out the stitches, they are healed. Some ears will need to be taped in one way or another, but on the breeds mentioned, this is seldom necessary.

DR. MILKE: Do you go through the cartilage?

DR. JENSEN: I do not go through the cartilage. Going just through the skin results in much cleaner healing.

DR. E. L. VAIL (Hagerstown, Md.): How do you determine the length of the ears and the curve of the ear. Is that by actual experience or do you have some rule of thumb?

DR. JENSEN: The rule of thumb is this: On Boxers and Doberman Pinschers, just about halfway across the head, when the ear lays down flat without stretching it. If it is going to be a big dog, make it a little bit longer, probably three-fourths of the ear. On miniatures, it is just about slightly less than halfway across the head. With Doberman Pinschers, slightly more than halfway across the head. Boston Terriers, about as long as you can make them.

DR. MILKE: And the curve?

DR. JENSEN: The curve comes naturally. The shape of the ear automatically gives that curve except in Great Danes and Boston Terriers where it should be more accentuated.

By just pulling on the top of the ear, while the clamp is held tightly at the bottom of the ear, you have a natural curve that is just about right. In Boston Terriers and Great Danes where a little more curve is wanted, hold the instrument in place with one hand and with the other hand put a little extra tension in the middle of the ear. This will give the desired amount of curve.

DR. HATFIELD (Calif.): How long do you make Schnauzers and Great Danes?

DR. JENSEN: With the Great Dane, a little past the middle. With the Schnauzer, a little bit less than halfway across the head. You can hold them up after they are marked and see how they will look. Of course, actual experience will help. Go to the dog show and see how long the ears are cut.

DR. C. L. MILLER (Oak Park, Ill.): You have used two or three different kinds of instrument. Do you have any preference?

DR. JENSEN: I have been working to develop one that I really like. The first ones were rather clumsy. Now I have one that is large enough for any dog and yet light-weight and very easy to hold in position.

DR. WALTER G. VENZKE (Columbus, Ohio): How about your experience with regular form clamps?

DR. JENSEN: I am sorry, I have never used any regular form clamps. As I mentioned before, I watched this person do a set of ears, and he let me do three out of five, after watching him do one, with an instrument of this type. When I started practice, I had one made something like it; that was the first instrument you saw. It was rather unhandy but it did the job; consequently, I have never used any forms or clamps of any sort.

Interest in reproductive efficiency of dairy cows is high for a number of reasons: (1) The economics of dairy farming have been modified so that efficient dairying is necessary; (2) the younger dairymen are better educated along scientific lines than were their predecessors; and (3) the widespread acceptance of artificial insemination has helped to focus attention on the importance of regular reproduction.—W. Wienicki, D.V.M., Wisconsin.

Lactation failure was almost complete when sows, in drylot during gestation and lactation, were fed a ration containing 83 per cent digester tankage, 1.5 per cent minerals, and 0.5 per cent fortified cod liver oil. Addition of 10 to 12 per cent alfalfa meal "significantly improved" lactation results.—J. L. Krider, Ph.D., University of Illinois.

Sperm Checking in Mink.—Dr. T. T. Chaddock, veterinarian for the Royal Mink Ranch at Bridgeport, Mich., has developed a sperm-checking method described as a proved technique of taking the guesswork out of fertility examinations in male mink. Details are given in the February, 1950, issue of *The National Fur News*.

Studies of more than 80 female swine, obtained from Illinois and Wisconsin herds and found to be of low fertility or sterile, revealed that tubal aberrations, cystic follicles, and blind or missing portions of the reproductive system were the most important causes.—J. Anim. Sci., Nov., 1949.

Bovine Hereditary Digital Anomaly.—An inherited digital anomaly found in a herd of Jerseys (*J. Hered.*, 40, July, 1949:151-155) was called to the attention of the investigators by a veterinarian in practice. The anomaly, deformed feet which resulted in lameness and pain for the animal when standing, became more severe with age. Through the registry records, it was possible to show that a single, autosomal, recessive gene conditions the anomaly.

That the delivery of calves by cesarean section is not, in itself, a reason for terminating the breeding life of cows is an opinion freely expressed in current literature.

An English surgeon, Dr. Wright, recommends an incision between the median line and the milk vein for cesarean section in the cow. The advantage claimed is that in the event of a rupture of the incision, the rumen cannot prolapse as small intestines would.—D. C. Wood, D.V.M., Indiana.

Cornell University records show that the average length of the heat cycle for heifers is about twenty days, and for mature cows about twenty-one days, although a spread of three days on either side may be considered normal.—S. A. Asdell, *Holstein-Friesian World*.

Bovine twins often possess identical blood types, because anastomosis of the chorionic blood vessels frequently occurs. Blood typing of a heifer and her twin bull can be done early in life, and may provide a means of identifying the freemartin when only a few days old.—Clyde Stormont, Geneticist, University of Wisconsin.

Dog Owners Advised to Consult Veterinarians

"Contrary to a common belief, you're not necessarily spoiling your dog if you see more of your veterinarian than you do of your family doctor," says Elias Vail in the March issue of *American Magazine* in his column, "Speaking of Dogs." Then he adds "Even a number of false alarm calls are often to an owner's credit, because in an animal that suffers silently it is sometimes hard for anyone to tell whether the symptoms are serious or not. So, if you call on him whenever in doubt, your local veterinarian's unique skill and training may save a lot of headaches and heartaches."

CLINICAL DATA

Clinical Notes

Some of the mastitis antibiotic ointments are excellent for fight wounds, infected anal glands, and eye infections.—*R. E. Rugles, D.V.M., Illinois.*

Use of a receiving barn to bring all horses under official supervision for a stated period before each race has not proved completely effective in the prevention of drugging.—*The Blood-Horse, Dec. 31, 1949.*

Abscesses are rather common in Brucella-infected swine. Though usually located in the limbs, many abscesses from which the specific organism can be isolated occur in the internal organs.—*Jen-Sal Journal.*

Animal Infections and Public Health.—Says the *British Medical Journal*: "The fact that no less than eight papers on public health were read at the Fourteenth International Veterinary Congress is a reminder that medical men and veterinarians have many interests in common."

Treatment of Sore Eyes in Lambs.—Sore eyes in lambs—with the lids turning either in or out—often respond miraculously if the lids are rolled out and dusted twice daily with finely powdered boric acid. We can't explain it, but it works, and it often obviates the need for surgery.—*Frank Thorp, Jr., D.V.M., Iowa Vet., Jan.-Feb., 1950.*

Tuberculosis in Mink.—Pulmonary tuberculosis has been observed in mink recently. Typical miliary tuberculosis was found in the lung tissue and caseous foci occasionally in the spleen. Typing studies are now in progress and possible sources of infection are being traced.

Tuberculosis is apparently rare in mink, few cases being reported in the literature. However, the extensive use of packinghouse by-products and of raw poultry by-products in the ration of mink would seem to offer opportunity for such infection.—*G. L. Ott, Ph.D., Wisconsin.*

About 500,000 replacements in dairy herds (2 per cent of 26 million) are required annually because of brucellosis.—*Univ. of Illinois.*

True as it is that sulfonamides and antibiotics have revolutionized the treatment of acute infections, including the complications of surgery, it must be realized that they can not replace surgery.

One of the most important by-products of the atom bomb was the discovery of a technique for producing isotopes in quantity. As tracers in biologic research, isotopes were used over twenty-five years ago but were too rare to use in medicine.

It is generally agreed that cats have a higher resistance to the human tubercle bacillus than dogs but are more frequently affected with the bovine type than dogs. Or, is the opportunity for contracting the disease, rather than innate susceptibility, the determining factor?

It has been said that if brucellosis and trichomoniasis were completely eradicated, 80 per cent of the bovine infertility due to disease would be removed.—*J. B. Herrick, D.V.M., Iowa.*

PASA.—In the chemotherapy of human tuberculosis, PASA (para-aminosalicylic acid) is making the headlines in current medical literature. The dosage ranges from 10 to 30 Gm. daily in divided doses. The object is to maintain a blood level of about 10 mg. per 100 cc. Important but not sensational responses are reported.

ACTH.—An improved technique for the extraction of adrenal corticotrophic hormone (ACTH) from the pituitary glands of hogs is announced by the technicians of Wilson & Company's laboratory, in current medical literature, as a step toward its production in commercial amounts, probably from animals other than swine.

Studies on the Protostrongyline Lungworms of Sheep

CORTLAND R. MAPES, B.S., and DONALD W. BAKER, B.S., D.V.M., Ph.D.

Ithaca, New York

TWO SPECIES of protostrongyline lungworms are now known to parasitize North American domestic sheep. One of these, *Muellerius minutissimus*, is prevalent in the sheep of eastern United States, being found in nearly all lambs over 6 months of age reaching our slaughterhouses. The second of these lungworms is *Protostrongylus rufescens*. At the time of this writing, the specimens of this protostrongyline recovered by the writers from an experimental flock of sheep at Ithaca, N.Y., are the sole representatives of this species and, in fact, of this genus, reported from the domestic sheep of North America. Since this worm has been found only within the past year and its identity established only recently, our study of this pulmonary helminth is incomplete and the observations recorded here constitute a preliminary report. We are indebted to Dr. Gerard Dikmans for determining the identity of our specimens. A discussion of this parasite, new to our domestic sheep, and its occurrence in the flock under study at Ithaca are being reported in a paper by Dikmans and Mapes, "The Lungworm, *Protostrongylus Rufescens*, Found in Domestic Sheep, *Ovis Aries*, in the United States."

Since our sheep at Ithaca have shown a mixed infection with both of these parasites, it has been possible to initiate a comparative study of the two species. *M. minutissimus* is an extremely slender worm, about 50 μ in diameter, the male having a length of 12 to 14 mm. The worms can not be seen in a gross examination of the lungs because of their delicate structure and their location in the lung parenchyma. Their presence, however, can be detected by the small nodules they form, which are invariably located just beneath the pleura. The worms may be observed by pressing excised nodules between two glass slides

and studying the compressed tissue with and aid of a low power, binocular microscope. The male *M. minutissimus* is characterized by a spiral configuration of the caudal end of the body, which forms five or more coils, and the absence of a bursa.

Protostrongylus rufescens, unlike *M. minutissimus*, does not inhabit the lung parenchyma. Instead, this species occurs in the trachea, bronchi, and bronchioles. *P. rufescens* is a larger worm than *M. minutissimus*, the males being 16 to 28 mm. long by 170 μ broad. This worm is readily detected in a gross examination of the respiratory apparatus. We have found as many as 26 adult worms lying free in the tracheal mucus in a lamb examined directly after slaughter. The points of origin of the bronchi of the second order appear to be a favored location. At these places, groups of worms may be seen in coiled up masses, pairs of worms sometimes being found in copula. The worms may be most readily recovered from the bronchioles by submerging excised portions of lung tissue in physiologic saline. This procedure induces the worms to emerge from the cut bronchioles and to enter the saline. By using this method, perfect specimens for preservation may be obtained. In contrast to *M. minutissimus*, *P. rufescens* possesses a well-developed bursa and the caudal end of the body shows no spiral coiling.

Both of these pulmonary helminths follow the typical protostrongyline life cycle pattern. The Hobmaiers, in their studies on *M. minutissimus*, pioneered in establishing the fact that the protostrongyline lungworms require a mollusk for their intermediate host. The adult worms deposit eggs in the pulmonary alveoli, and the first-stage larvae hatch here. These larvae then embark on a migration through the respiratory passageways and the alimentary tract, from which they are ultimately eliminated with the feces. The larvae show a predilection for mucus during this migration, being found crawling on the mucosa of the colon

From the New York State Veterinary College, Cornell University, Ithaca.

Presented before the Section on Research, Eighty-Sixth Annual Meeting, American Veterinary Medical Association, Detroit, Mich., July 11-14, 1949.

and rectum, rather than being transported passively with the intestinal contents. For this reason, the larvae are found in strands of mucus clinging to the exterior of fecal pellets. When such pellets are floated in water, the larvae quickly become disengaged from their attachment and settle to the bottom of the container, where they may readily be detected by using a low power, binocular microscope.

Even though a low magnification is used, the larvae of *P. rufescens* may be readily distinguished from the *M. minutissimus* larvae on the basis of size and the type of motility. The *P. rufescens* larva is the larger of the two, most specimens being about 340 to 360 μ long, whereas the slender *M. minutissimus* larvae vary from 230 to 300 μ in length. Both species exhibit ceaseless motility in water at room temperature. Sinuous lateral undulations, involving the entire body, are characteristic of the larvae of *M. minutissimus*. The *P. rufescens* larvae, on the other hand, are not capable of as much flexion, and the undulatory movements only slightly involve the middle third of the body.

Under high magnification, the larvae of the two species may be differentiated by the configuration of the caudal portion of the body. While both species possess a caudal appendage with an undulating outline, only *M. minutissimus* possesses a dorsal spine at the base of this appendage.

Under natural conditions, the action of rain on the fecal pellets in the sheep pasture enables these first-stage larvae to reach the ground and thus to attain a more advantageous position to contact their intermediate hosts. The larvae are remarkably long-lived if provided with moisture. We have kept hundreds of *M. minutissimus* for as long as five months submerged in tap water and refrigerated at 8 to 12 C.

To continue their development, the first-stage larvae must penetrate the foot of an appropriate mollusk. Over forty species of snails and slugs have already been reported as suitable intermediate hosts of *M. minutissimus*. By artificial infection experiments, we have been able to add the name of another mollusk to this already long list of potential vectors, namely *Zonitoides arboreus*, a small snail. We were further able to show that another snail, *Anguispira alternata*, is refractive to invasion by the larvae of *M. minutissimus*.

The parasite reaches the infective stage

after undergoing two molts in the foot of the mollusk. This stage may be attained in certain mollusks in less than two weeks. Longer periods requisite for reaching the infective stage have been reported in mollusks to which the parasites are probably less well adapted, as well as in appropriate mollusks when the conditions of temperature and humidity are not optimal for the metabolism of the hosts and their parasites. In *Z. arboreus*, kept at room temperature, we found that the larvae reached the infective stage in 27 days or less.

To complete the developmental cycle, the mollusk harboring these infective, or third-stage, larvae must be ingested by an appropriate definitive host. The tendency of sheep to accomplish most of their feeding nocturnally is a factor which aids in the widespread infection in flocks which are grazing on infected pastures, since slugs and terrestrial snails are most active in vegetation after dew has been precipitated in the evening. The route taken by the larvae in their migration from the digestive tract to their definitive position in the pulmonary apparatus has not yet been determined for *P. rufescens* or *M. minutissimus*.

In the spring of 1948, we initiated a study of the epizootiology of *M. minutissimus* infection in the flock of experimental sheep at Ithaca. An intensive survey showed that the pasture was inhabited by two species of slugs, *Arion circumscriptus* and *Deroceras reticulatum*. Although *A. circumscriptus* has been reported to be an appropriate intermediate host of *M. minutissimus*, we were unable to demonstrate any larval stages of the parasite in this slug. On the other hand, 31 per cent of the 103 specimens of *D. reticulatum* recovered from the pasture carried this parasite. While the average number of larvae harbored by an individual was about 5, occasional slugs had 20 to 30 parasites.

Infective larvae were recovered from hibernating slugs collected on April 7. Since the sheep had not yet been put out to pasture on this field, the parasites must have invaded the mollusks the previous season and successfully overwintered in their hosts. Fields in which parasitized sheep have grazed, therefore, hold infection possibilities for lambs at the very start of the following grazing season.

Four ewes from our experimental flock were stabled from Nov. 1, 1947, until June 29, 1948, under conditions where no pos-

sibility for reinfection existed. Examination of the feces of these animals on the latter date showed that 3 of the ewes were eliminating *M. minutissimus* larvae. This demonstrated ability of the parasite to exist at least eight months in the definitive host makes possible the repopulation of the pastures with larvae the following spring.

In every phase of its life cycle, *M. minutissimus* possesses remarkably wide margins of safety for insuring the preservation of its species. The fecundity of the adult worms, the ability of the free-living, first-stage larvae to remain viable for long periods, and the great number of suitable intermediate hosts almost certainly insure the transmission of at least some individuals from the definitive host to the vectors during the grazing season. The choice of inconspicuous vectors, often found in great numbers where sheep graze, permits the ready transmission of the parasite to the definitive host. By its ability to overwinter in the sexually active adult stage in the definitive host as well as in the larval form in the intermediate host, *M. minutissimus* successfully maintains its population in our domestic sheep from one season to the next.

Bibliography

- Cheatum, E. L.: Personal communications, 1948.
- Dikmans, G.: Personal communications, 1948.
- Dougherty, E. C., and Goble, F. C.: The Genus *Protostrongylus* Kamenskii, 1905 (Nematoda: Metastrongylidae), and its Relatives: Preliminary Note. *J. Parasitol.*, 32, (1946):7-14.
- Gerichter, C. D.: Observations on the Life History of Lung Nematodes Using Snails as Intermediate Hosts. *Am. J. Vet. Res.*, 9, (1948):109-112.
- Hobmaier, A., and Hobmaier, M.: Ueber die Entwicklung der Lungenwürmer des Genus *Synthesetocaulus* (Vorläufige Mitteilung.) München. *Tierärztl. Wchnschr.*, 80, (1929):393.
- Hobmaier, A., and Hobmaier, M.: Ueber die Entwicklung des Lungenwurmes *Synthesetocaulus Capillaris* in Nackt-, Weg- und Schnirkolschnecken. München. *Tierärztl. Wchnschr.*, 80, (1929):497-500.
- Joyeux, C., and Gaud, J.: La pneumonie vermineuse des ovins au Maroc. Note préliminaire. *Soc. Path. Exot. Bull.*, 36, (1943):232-235.
- Megnain, M.: Sur la pneumonie vermineuse des moutons d'Afrique. *Rec. Méd. Vét.*, 53, (1878): 636-639.
- Pavlov, P.: Recherches expérimentales sur le cycle évolutif de *Synthesetocaulus Capillaris*. *Ann. de Parasitol.*, 15, (1937):500-503.
- Sprehn, C. E. W.: *Lehrbuch der Helminthologie*. Gebroder Borntraegen, Berlin, (1932):742-744.
- Mapes, C. R.: Notes on the Biology of *Muellerius Minutissimus* (Megnin, 1878), and a Report on Therapy with 1-Diethylcarbonyl-4-Methyl-Piperazine Hydrochloride (Caricide) in Sheep. Thesis. Cornell University, 1948. Unpublished.

A New Method for Studying in Vitro Rumen Digestion

A new method of studying rumen digestion *in vitro* in a cellophane bag is described. This method is also compared to the method described by Marston, which did not allow for the escape of nongaseous fermentation products. There was no microscopic evidence of attack by the ruminal organisms on the cellophane bag.—*Science*, Nov. 4, 1949.

Adenozine for Pruritus

Adenozine-5-monophosphate is a new approach to the treatment of pruritus, generalized, local, diabetic, allergic *et al.*, producing complete or marked subsidence or amelioration of symptoms. This biochemical agent is said to correct abnormal phosphorylation which is assumed to be a cause of itching skin. Knowledge of its effect in animals is not available.

Galus Bankiva

The barnyard chicken, like the other domestic animals, was lured from the wild—the jungles of India, where the early ornithologists named it *Galus bankiva*. The jungle chicken was wily, robust, resourceful and hard to capture, but once caught was more easily tamed than other wild birds, so much easier in fact that in a few generations it became a silly dumb cluck with practically no instinct of self-preservation left. Scientists point out, and motorists agree, that for getting itself killed on the highways, *G. bankiva* has no close rival.

The domesticated chicken passed westward from India to Greece to Rome to Spain and to the Americas with the first settlers. As the story goes, the jungle chicken was not tamed for its meat and eggs but for sport. Cockfighting is one of man's oldest inhumane sports.

The Morgan Horse.—The most prepotent horse of all times was assuredly Justin Morgan born in Vermont 161 years ago. There are more recognizable Morgan genes in American horses than those of any other sire, and no breed of horses is mentioned more often than the Morgan. His blood is the source of much of the stamina, endurance, beauty, speed, and good disposition horses possess.

Sulfonamides become foreign bodies when used locally.

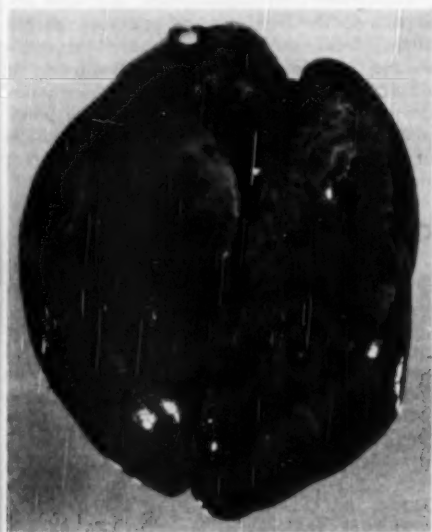
Chemotherapy of Experimental Histomoniasis (Enterohepatitis) of Turkeys

J. H. SAUTTER, D.V.M., Ph.D., and B. S. POMEROY, D.V.M., M.S., Ph.D.

St. Paul, Minnesota

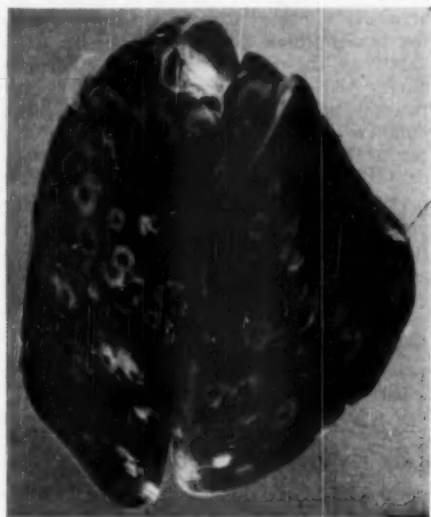
THESE STUDIES were undertaken to find a drug which would be effective in the treatment of histomoniasis or blackhead of turkeys. Obviously, the first step in such a study was to find a method of reproducing

and there may be difficulty in securing sufficient numbers of the cecal worm eggs for large scale screening trials; (3) the artificial cultivation of the histomonads and their subsequent rectal injection, as prac-



—American Journal of Veterinary Research

Fig. 1—Liver of turkey seven days after inoculation.



—American Journal of Veterinary Research

Fig. 2—Liver of turkey twelve days after inoculation.

the disease which would be satisfactory for the screening of drugs. Among the several factors which influenced the choice of methods were the short season in which poults are available, and the time and space required.

Methods available were (1) exposure of the birds to an infected range, which is inadequate for screening procedures; (2) the feeding of *Heterakis* ova, excellent in many respects but the experiments take longer

ticed by DeVolt. This is probably the method of choice except for the difficulty in growing sufficient quantities of the organisms.

The rectal-injection method was chosen for this study because of experience with the technique and the speed with which results could be obtained. A new experiment could be started every six to eight days, if desired. The disease is readily reproduced and the inoculum is readily available.

The technique of preparing the inoculum for the rectal injection consisted of obtaining livers from poults recently dead or destroyed at the height of the disease.

Presented before the Section on Poultry, Eighty-Sixth Annual Meeting, American Veterinary Medical Association, Detroit, Mich., July 11-14, 1949.

From the School of Veterinary Medicine, University of Minnesota, St. Paul.

These livers were immediately removed, sliced with a knife, pressed through a fine screen, and diluted with saline to a consistency thin enough for injection with a syringe.

SUMMARY OF MORTALITIES

When a culture obtained from a bird of a flock suffering low mortality was brought to the laboratory, the birds died in fifteen to eighteen days on the first passage; twelve to fifteen on the second; and six to ten days on the third passage. In contrast to this, a culture obtained from a flock suffering from an acute outbreak with high mortality produced deaths in six to ten days on the first passage. Deaths occur much earlier with repeated passages.

In a liver from a bird which died the seventh day after inoculation (fig. 1), little dark areas represent acute type lesions. Examined in the fresh specimen, these are red and hemorrhagic. When inoculum is made from a liver such as this, myriads of organisms are used; therefore, it is believed this may be important in producing early mortalities and a possible increase in virulence.

In a liver from a turkey which died on the twelfth day after inoculation (fig. 2), the light areas are those which, in the seventh day acute stage shown in figure 1, were hemorrhagic.

Before drugs were tested, it was necessary to run a brief toxicity trial in an effort to arrive at a maximum tolerated dose. To find this, a rather wide range of doses was given to small groups of turkeys. There was one death at 2.0 Gm. per kilogram. In the next trial, the procedure was repeated using levels above and below the apparent minimum level shown in the first trial. All turkeys died at 2.5 Gm.; 1 of 3 died at 2.0 Gm.; and at 1.75 Gm., slight toxic symptoms were noticed, but no deaths. So, a dose of 1.25 Gm. per kilogram was selected.

We were interested in setting up experiments in which drug activity could be measured in relation to time of treatment and also the effect of a single versus multiple doses.

Here, the dose of trypanamide was 1.25 Gm. per kilogram; there were 5 birds in each lot; and the drug was given on the day of inoculation, second, fourth, sixth, eighth days, and a single and multiple dose were given groups of 5 on each of those days.

This tested the effectiveness of a single dose and of 3 doses given at the various times. In general, mortality increased when therapy was delayed, and 3 doses was better than 1.

Poults were given 250 mg. of iodine vermicide and 70 mg. daily was furnished in diluted milk. The mortality was 28 per cent compared with 64 per cent in the controls. The survivors appeared shaggy at the end of the experiment and did not recover quickly, as is usually the case.

Sulfamethazine was given at 0.4 per cent in the mash with poor results. Sulfaquinoxaline was given at 0.1 per cent in feed, and appeared to protect a little better. According to the time of control deaths, these results had been expected. Stovarsal at 0.5 per cent was given for three days, withheld six days, and repeated three days. The result was a 30 per cent mortality. Sulfaquinoxaline was given three days starting on the day of inoculation. Of these birds, 90 per cent died.

When stovarsal was repeated, mortality was zero; with sodium fluoride, it was 100 per cent; and mortality among the controls was 85 per cent. Such results with stovarsal are difficult to explain, but it does happen. Sodium fluoride, of course, did not protect, the mortality being 100 per cent.

When stovarsal was used at a level of 0.75 per cent, starting the day before inoculation, removed for four days, and given again, the mortality was 30 per cent. The birds dying in this experiment did not show cecal lesions. Trypanamide was used at 0.5 per cent with a mortality of 10 per cent. Sulfaguanidine and streptomycin were ineffective in preventing losses. Control mortality was 90 per cent and all had cecal lesions.

When stovarsal and trypanamide were given at a level of 0.75 per cent for four days, starting the day before inoculation, mortalities were 90 to 100 per cent, respectively.

The only way to explain these results may be that the turkeys were smaller than usual and the weather was very warm. However, the drugs did postpone death for a few days.

Immune blood was obtained from turkeys that withstood repeated injections of liver inoculum. Whole blood (10 cc.) was given intravenously and subcutaneously to two groups of 5 birds each on two successive days. The mortalities were 100 per cent

in all cases including the controls. From these results, one would conclude that humoral antibodies are absent or present in insufficient amounts to protect.

In another experiment, stovarsal alone, stovarsal with vitamins, and vitamins alone were used. The vitamins were biotin, choline, pyridoxine, and niacin; and they were used at ten times the recommended levels. Vioform, at 1 per cent, was also given in the feed. Stovarsal alone, and with the vitamins, resulted in 11 and 10 per cent mortality, respectively. Vitamins alone resulted in 63 per cent mortality. This should be repeated. Vioform protected 100 per cent.

Stovarsal was given sufficient trial to warrant a more detailed study. Feed and water intake were measured and the poult examined and weighed every other day. Stovarsal and tryparsamide were given at 0.75 per cent and vioform repeated at 1 per cent. The mortalities were 35, 55, and 60 per cent, respectively. Cecal lesions were present. Weight gains were less in the infected groups treated with tryparsamide and stovarsal.

It seemed desirable to check again the earlier observations concerning tryparsamide given parenterally. To obtain this information, stovarsal was given at 0.75 per cent to one group of 20 poult for three days, beginning two days before inoculation. In another group, the drug was withheld until the third day after inoculation. The results were 25 and 100 per cent mortality, respectively. Cecal lesions were absent in the group that received the drug early.

When 1.25 and 0.3 per cent levels of stovarsal and 1 per cent vioform were employed, the mortality was 5 per cent on both levels, and weight differences were not significant. The normal stovarsal group at 1.25 per cent showed no ill effect from the drug as compared to the normal controls.

In another experiment, levels of 0.1, 0.2, 0.3, and 0.75 per cent of stovarsal were given for three days and for eleven days. This was done in an attempt to find the minimum effective dose. Mortality was similar in all groups except at the highest level, which was 30 per cent. Obviously, the lower effective limits were not reached.

DISCUSSION

DR. A. J. DURANT (Columbia, Mo.): This is an interesting discussion of an old subject. We,

at Missouri, have worked for a long time on various phases of blackhead, and I was interested to see that the test of the use of blood or serum for the protection of birds checked exactly with work we did some years ago.

We took birds that had been naturally infected, not artificially, tested for immunity, bled them, and injected a group of young poult. These were then exposed to natural infection. Those that received the serum died faster than the controls, and the mortality was just about the same. We concluded that the blood or serum from naturally infected birds had no protective value.

These experiments are interesting from several standpoints. Although no drug is 100 per cent effective, early use of stovarsal is promising.

DR. J. A. BIVINS (New Brunswick, N. J.): In the birds treated with stovarsal at or before the time of infection, was any subsequent challenge made to see whether they developed any immunity?

DR. SAUTTER: Yes. All the inoculated birds were divided into equal groups. The survivors from the experiments were separated according to previous weight loss, and the appearance of yellow droppings. At the end of the experiment, a challenging group was made up of 5 birds that had gone through without showing symptoms or weight loss, and 5 that had shown symptoms, yellow droppings, and weight loss.

At the end of the primary experiment, the two groups were then challenged, and 72 per cent of the birds died as a result of the challenging inoculation.

DR. SIVERT ERICKSEN (Madison, Wis.): Did you make analyses for arsenic in the tissues before or after the treatment?

DR. SAUTTER: No, but that work is in progress now. We were interested first in learning if the drugs had any activity, and in trying them in the field. Arsenic determinations will be worked out later if warranted.

DR. ERICKSEN: In work along that line, we found that if the arsenic was maintained at a certain level in the liver tissue, infection did not take place. When it dropped below that level, infection would take place regardless of the time.

DR. SAUTTER: That observation, of course, appears to be in line with what is known of the accumulation in the tissues, and the residual effect after the arsenic is removed from the diet.

DR. GEORGE W. RAWSON (Summit, N. J.): In the first set of graphs, the stovarsal mortality was 11 per cent; tryparsamide, 10 per cent; and in the case of vioform, no mortality. In a later graph, it was 45 per cent with the vioform and about 5 per cent with the stovarsal. I don't quite understand these differences in mortality.

DR. SAUTTER: Those things happen. That is why the experiment should be repeated at least three times before conclusions are drawn concerning drug activity.

DR. RAWSON: Were the experiments conducted at the same time and under the same temperature conditions?

DR. SAUTTER: They were all conducted during the summer months, but there apparently is enough variation to affect the results. The weather, the availability of feed and water, and the size of the bird are all very important. Those are important factors which do not show on a graph.

CHAIRMAN STAFSETH: As long as we are working with animals and birds of unknown resistance or susceptibility, and as long as we know nothing about the influence of environment, such figures will occur.

A few years ago, I tested for the Food and Drug Administration two drugs that anyone would know are absolutely useless—fakes of the worst kind. If I had stopped at the first or second trial, I could have proved that they would cure not only pullorum disease but also coccidiosis.

DR. DIKMANS: Just what conclusions do you draw from your work at the present time? Would you recommend any one of these drugs now?

DR. SAUTTER: At the present time, no drug is effective once the infection gets into the liver. Apparently, the arsenicals keep the infection out of the cecum, but some organisms multiply rapidly, penetrate the wall of the cecum, get into the circulation, and thence into the liver. In the liver, the arsenicals have little effect on their growth. The bird will live apparently as long as there is enough normal liver tissue to support life, but when the ratio gets to a certain point, death results.

DR. DIKMANS: How was vioform given and what is it used for?

DR. SAUTTER: Vioform was given in the feed, and it has been used in human amebiasis. Dr. DeVolt has also reported on its use in histomoniasis.

DR. DIKMANS: What is its chemical makeup?

DR. SAUTTER: It has a quinoline nucleus and contains iodine.

DR. W. H. HENDRICKS: (Salt Lake City, Utah): Was any notice taken of any other parasitic infection that might play a part?

DR. SAUTTER: Yes. The turkeys used in these experiments were obtained from a hatchery and kept in separate buildings. When I got ready to use them for the experiments, they were brought out of that building and were taken to the pen where blackhead experiments were being conducted. All the birds that died were examined postmortem, the cecal contents checked both microscopically and grossly, and each bird was cultured for the presence of bacteria. There were no concurrent infections.

Symptoms of Distemper in Mink

In distemper, the eyelids of mink become inflamed, watery, puffy, and gradually crusty until the eyes are shut. The mouth becomes scabby. The head may swell. Of-

ten the feet swell with crusty scabs forming on the paws. The fur is unkempt and rough. Usually, the animal goes off feed and loses control of the body functions. It appears to strain so that the rectum is everted. Alone, any of these symptoms may be caused by other diseases.—Geo. L. Ott, Ph.D., *the National Fur and Market Journal*.

Heretofore Undescribed Type of Roaring

Quinlan, Van Rensberg, and Starke* describe a type of respiratory stridor in horses allegedly due to failure of branches of the vagus supplying the soft palate (-palatum molle) instead of the branches supplying the intrinsic muscles of the larynx. Contrary to the inspiratory roaring of laryngeal hemiplegia, which is made by the in-streaming air current, the stridor of palatine paralysis occurs during expiration, i.e., the noise is made by the outstreaming current and is distinguishable from the characteristic whistling of recurrent laryngeal paralysis but, like the latter, develops from galloping.

Two cases, both in 6-year-old Thoroughbreds, were reported as was the technique of successful intervention in both cases. Paralysis of the palatini (which shorten the soft palate) and the levator (which lift it over the posterior nares during the act of swallowing) were accountable for the distressed exhalations.

The operation, the first of the kind, ought to be named *partial staphelectomy* inasmuch as it consisted of excision of the medial part of the velum. The larynx was opened through the interthyroid ligament and cricoid cartilage as in the Williams operation for laryngeal hemiplegia. The larynx was entered, a long forceps slipped over the middle of the velum through the glottis, and the part grasped was excised with a curved, blunt scissors. The wounds were left open.

Both of the horses which had shown no respiratory distress up to the age of 5 years recovered and went back to racing.

*Quinlan, W. S., Van Rensberg, J., and Starke, N. C.: The Soft Palate (Palatinum Molle) as a Cause of Dyspnoea in Two Racehorses. *J. South Afric. Vet. M. A.*, 20, (Sept., 1949): 125-127.

Coenurosis in the Chinchilla

FRANK K. BRACKEN, D.V.M., and O. WILFORD OLSEN, B.A., M.A., Ph.D.

Fort Collins, Colorado

COENUROSIS, due to cysts of the tapeworm *Multiceps serialis* (Gervais, 1847), has been a recognized disease entity in rabbits and squirrels since Gervais identified the lesion and proposed the name *Taenia serialis* for it in 1847. The two names have since become synonymous. Hall¹ gave a thorough discussion of the disease and listed the various members of the rabbit and squirrel families that serve as intermediate hosts for this tapeworm. At present, there seems to be no literature incriminating *M. serialis* as a parasite of the chinchilla. It is the purpose of this article, therefore, to report and to describe coenurosis due to *M. serialis* in this animal.

Since this lesion was first seen in 1947, 7 chinchillas have been observed with similar parasitic cysts. While many cysts are harmless, though disfiguring, some endan-

were from the college laboratory experimental unit, and 2 were privately owned and brought to the college for treatment. Other cysts have been observed on field trips to private chinchilla units, but positive identifications of the parasites were not made.

This parasite shows a predilection for connective tissue in the intermediate host, principally the subcutis and intermuscular fascia. Therefore, cysts are capable of appearing in almost any part of the body, as indicated by the following observations. Two animals had one cyst each in the subcuticular tissue over the rami of the mandibles; another had two cysts in the fascia of the longissimus dorsi and the psoas fascia (fig. 1); 1 had a rather large cyst in the axillary space; 1 had a single cyst in the subcuticular tissue over the atlas; 1 had a

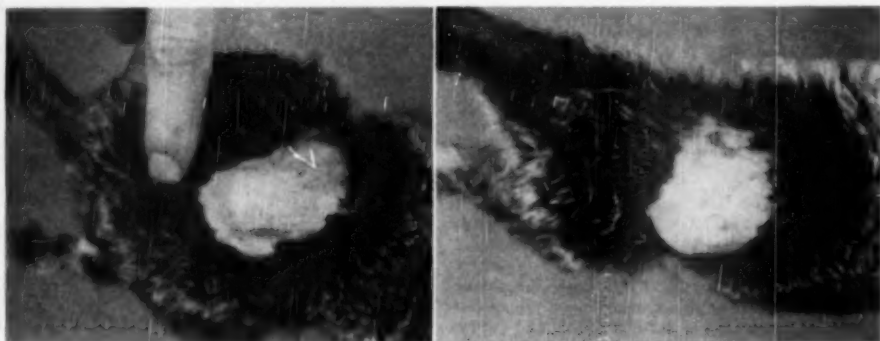


Fig. 1.—Two views of a coenurus present in the fascia of the longissimus dorsi.

ger the life of the animal due to mechanical interference with body function. Remedial measures, therefore, are necessary.

OCCURRENCE

As previously mentioned, cysts of *M. serialis* were observed in 7 chinchillas during the past two years. Five of the animals

cyst between the scapula and the thorax; and another had one present in the orbit behind the eyeball.

As stated above, some of the coenuri were causing mechanical interference with function, while others seemed harmless. The 2 chinchillas with cysts on the rami of the mandibles died of starvation due to interference with eating. Claudication was marked in the 2 animals with cysts in the axillary space and subscapularis fascia. The cyst found in the orbit caused a pronounced exophthalmus which interfered with normal vision.

From the Department of Pathology and Bacteriology, Colorado Agricultural Experiment Station, Fort Collins.

¹Hall, Maurice C.: Taenioid Cestodes of Dogs and Cats. Proc. U. S. Nat. Mus., 55, (1920):51-56.

ETIOLOGY

Coenuri removed from these chinchillas were identified by examination of the evaginated scoleces on the cyst walls and by examination of the strobilae of adult tapeworms obtained from dogs that had been fed the cysts one month prior to autopsy. The dogs had been treated with a taeniocide (nemural) before being fed the cysts, to free them of any tapeworm infections that might have been present before feeding them the cysts from the chinchillas.

Infection of chinchillas appears to be due to ingestion of eggs of *M. serialis* present in contaminated feed. The definitive hosts of *M. serialis* are the various members of the family Canidae (dog, fox, coyote, etc.) and, since most chinchillas are maintained under sanitary conditions, the only logical contact with the definitive hosts would be indirectly by soiling of the feed with feces. Ingested eggs embryonate in the digestive tract, and the hexacanth larvae are disseminated throughout the body by means of the circulation where they localize and form coenuri.

LESION AND DIAGNOSIS

Lesions of the intermediate stage of the parasite are quite characteristic. A firm mass, 1 to 4 cm. in diameter, of encysted fluid is present, which upon palpation gives a tense, drumlike sensation. The animal evinces no pain when the cyst is handled and there is no heat present since inflammation is negligible. The coenurus has a thin membranous wall which, upon opening, reveals numerous invaginated scoleces all attached to the wall (fig. 2, 3). Internal and external daughter bladders described by Hall,² as occurring in other intermediate hosts, have not been found in chinchillas.

A clinical diagnosis of coenurosis is usually not difficult, and is based on palpation of the cyst. The only other lesion likely to be confused with coenurosis is an abscess. Upon examination, abscesses should manifest heat and pain and, if the process is of sufficient duration, "pointing" should be discernible. In addition, the chinchilla's general health may be affected. None of these features are present when the lesion is due to a coenurus. If further evidence is needed, paracentesis will bring forth a clear fluid in the case of a cyst, and purulent material in the case of an abscess.

TREATMENT

Standard procedure of treatment has been surgical extirpation of the entire coenurus. The method used at this laboratory is to make a single incision beginning

directly over the cyst and carried down through the tissues to the cyst wall. When exposed in this manner, the cyst will bulge into the incision, due to internal pressure, and it can be removed easily by means of forceps. If the incision is too deep and the wall of the coenurus is incised, the cyst will collapse, but it still can be removed successfully with forceps. Anesthesia is by either local procaine infiltration or sodium pentobarbital injected intraperitoneally. Wound



Fig. 2—An intact coenurus removed by surgery.



Fig. 3—Coenurus that has been incised to show the multiple scoleces attached to the cyst wall.

closure is by means of subcuticular sutures of 0000 medium chromic catgut. Sutures should be completely buried as chinchillas have a tendency to chew exposed stitches.

One animal submitted for treatment was handled in a different manner. All fluid was aspirated from the cyst by a sterile, 22-gauge needle and then 0.5 cc. of a 1:1,000 solution of merthiolate (stainless) was injected into the cyst through the same needle. One week later, no trace of the cyst could be found and it has not recurred. On the basis of the success of this treatment, further investigation of this method seems warranted.

CONTROL

Control measures center around precautionary steps to insure that *M. serialis* eggs do not come in contact with chinchillas. The principal source of infection is feed containing the eggs, particularly lawn cuttings contaminated with dog feces which are fed in some chinchilla units. The substitution of other feeds that do not come in contact with dogs should decrease the incidence of coenuri.

Dogs harboring adult cestodes represent the most frequent source of infection in chinchillas since contact, either direct or indirect, with other Canidae is unlikely. Periodic treatment of dogs on the premises with a taeniocide should do much to decrease egg contamination of the vegetation used for feed.

SUMMARY

The coenurus stage of the tapeworm *Multiceps serialis* in chinchillas is reported. Lesions, diagnosis, treatment, and control are discussed.

Brucella M Vaccine

The injection of M vaccine into cattle does not, of itself, produce an appreciable blood reaction, and those minor reactions which do occur soon disappear. Experiments with cattle are now under way in Michigan, Illinois, West Virginia, Ohio, California, Wisconsin, and perhaps in other locations. In some of these instances, it is possible to compare the efficacy of M vaccine with that of strain 19. A few controls have also been left. When the results of these comparisons are available, it will be possible to judge more accurately of the added advantages which may be expected from the use of M vaccine rather than strain 19.—*Report of Subcommittee on Re-*

search of the National Brucellosis Committee (a 7-page, Mimeographed Study).

[The reaction of practicing veterinarians to M vaccine may be judged by the fact that, in Michigan during the past year, practicing veterinarians used about two doses of M vaccine to one of strain 19, even though the former was purchased and the latter was available without charge.—Ed.]

Swine Erysipelas

Since the earliest work of Nocard, Valée, and Leclainche, the ubiquity of swine erysipelas has been attributed (without proof) to the presence and the livability of the specific agent in exterior mediums: Soil, humidity, temperature were held responsible for its perenniality. But, that concept could not survive after the investigational work of the last ten years had shown that *Erysipelothrix rhusiopathiae* is a vegetating saprophyte of the majority of hogs, living in and shedding from the open vestibules of the hog's internal organs like many other bacteria of mammalian life that become pathogenic only when "favoring" conditions overtake the host. As explained in a current discussion,¹ "when swine erysipelas strikes a herd of hogs, the specific agent is not imported; it was there all the time harbored and waiting for the opportune moment."

In herds previously exempt, that moment is often created by the reaction of vaccinations against other diseases: hemorrhagic septicemia, enteritides, cholera. By the same token, the risk of spreading swine erysipelas by the use of live culture vaccine is imaginary. Germs aplenty were already there, in the soil and in the hogs, more especially so if the vaccination is done in a herd or region already affected. In other words, the pathogenesis of swine erysipelas is not altered by the newly added germs but by the migration of previously latent germs from their nesting places to the tissues beyond. That, in a word, is swine erysipelas according to recent studies. The disease is not contagious according to this version. Its exciting causes are fatigue, gestation, sundry exposure, irritant alimentation, and vaccination, including that against the disease itself. The scientific *vis-a-vis* the theoretical view of swine erysipelas is important in the United States.

¹Basset, J.: Swine Erysipelas: Its Non-Contagiosity; Primitive Role of Adjuvant Causes (title trans.), Bull. Acad. vét. France, 22, (June, 1949):274-279.

The Incidence of Swine Brucellosis in Illinois

NORMAN D. LEVINE, Ph.D. and ROBERT GRAHAM, B.S., D.V.M.

Urbana, Illinois

BRUCELLOSIS is known to be a common disease of swine in the United States, yet no reliable statistics on its incidence are available. In order to obtain a rough idea of the incidence of the disease in Illinois, Graham and Levine¹ (1949) analyzed the records of agglutination tests made on swine blood at the veterinary diagnostic laboratory of the University of Illinois. During the thirteen years 1935 through 1947, 20,924 swine blood samples from 85 of the 102 counties in the state were tested. Of these, 2,333 (11.1%) were reported as positive. This percentage of positive reactions was almost twice as high as that obtained during the same period for cattle in Illinois. From July 1, 1934, to June 30, 1947, 2,515,000 blood samples from Illinois cattle were tested in the brucellosis-control program of the U.S. Department of Agriculture and the Illinois Department of Agriculture. Of these, 154,000 (6.1%) were positive, according to the records published by the USDA Bureau of Animal Industry.

In their report, Graham and Levine pointed out that the figure which they had obtained of 11.1 per cent positive reactions was not necessarily the true incidence of brucellosis in Illinois swine. Among the possible modifying factors which they listed was the fact that many of the blood samples were obtained from herds whose owners were attempting to eliminate brucellosis by the test and slaughter method. When such herds were retested, it would be expected that the number of positive pigs would have decreased. Hence, for more accurate results, only the first test made on each herd should be used.

In the present report, only the results of the first herd tests were used. They were taken from the records of swine agglutination tests made by the veterinary diagnostic laboratory of the University of Illinois and

the Illinois Department of Agriculture.* It was found that some herds had been tested both by the University of Illinois and by the State Department of Agriculture. Hence, it was necessary to have the records



Fig. 1.—The incidence of brucellosis in Illinois swine herds, 1938-1948. The upper figure is the number of herds tested; the lower figure is the percentage of herds which was positive. The shaded counties are those from which 11 or more herds were tested.

From the Department of Veterinary Pathology and Hygiene, College of Veterinary Medicine and Agricultural Experiment Station, University of Illinois, Urbana.

The technical assistance of Blanche Hays, Mary Miller, and Kathryn Perry is acknowledged.

*The courtesy of Dr. C. E. Fidler, superintendent of Livestock Industry, Illinois Department of Agriculture, in making the latter records available, is acknowledged.

of both to make sure that only the first test was included in the analysis.

RESULTS

A total of 47,502 blood samples from 994 swine herds was tested during the ten years, July 1, 1938, to June 30, 1948. Almost

for individual pigs, respectively, are given in tables 1 and 2.

Of the 19,937 pigs tested, 2,345 (11.8%) were positive, 577 (2.9%) were suspicious, and 17,015 (85.3%) were negative. Several different persons read the agglutination reactions during the period covered by this survey, and their criteria differed. Prior to about 1946, the tube test was used, with the rapid plate test as a supplement. After 1946, the rapid plate test was used exclusively. From 1938 to 1943, complete agglutination at a titer of 1:50 was considered positive, and complete agglutination at a titer of 1:25 was considered suspicious.

TABLE 1—Incidence of Brucellosis in Illinois Swine Herds

Year	Herds tested (No.)	Negative herds (No.)	Negative herds (%)	Suspicious herds (No.)	Suspicious herds (%)	Positive herds (No.)	Positive herds (%)
1938	10	5	50.0	0	0.0	5	50.0
1939	20	9	45.0	2	10.0	9	45.0
1940	22	11	50.0	3	13.6	8	36.4
1941	10	6	60.0	1	10.0	3	30.0
1942	49	31	63.3	1	2.0	17	34.7
1943	73	45	58.9	5	6.8	23	31.3
1944	88	42	47.7	10	11.4	36	40.9
1945	90	47	52.2	10	11.1	33	36.7
1946	164	83	50.6	13	7.9	68	41.5
1947	331	155	46.8	25	7.6	151	45.6
1948	137	67	48.9	12	8.8	58	42.3
Total	994	499	50.2	82	8.2	413	41.6

Negative herd—a herd in which all pigs tested were negative. Positive herd—a herd containing one or more positive pigs. Suspicious herd—a herd containing one or more suspicious, but no positive, pigs.

all the samples were from breeding animals. Of these samples, 5,131 (10.8%) were positive.

Only 19,937 of the blood samples were from the first tests made on the herds. The data on these first tests were sorted out and analyzed. The results for herds and

TABLE 2—Incidence of Brucellosis in Illinois Swine

Year	Pigs tested (No.)	Result			
		Negative (No.)	Negative (%)	Suspicious (No.)	Positive (No.)
1938	128	102	79.7	7	5.5
1939	350	275	78.6	26	7.4
1940	574	495	86.3	18	3.1
1941	130	96	73.8	7	5.4
1942	954	750	78.7	49	5.1
1943	1254	1030	82.1	60	4.8
1944	1650	1408	85.3	31	1.9
1945	2039	1737	85.3	110	5.4
1946	3277	2905	88.6	49	1.5
1947	6943	5980	86.1	152	2.2
1948	2638	2237	84.8	68	2.6
Total	19,937	17,015	85.3	577	2.9

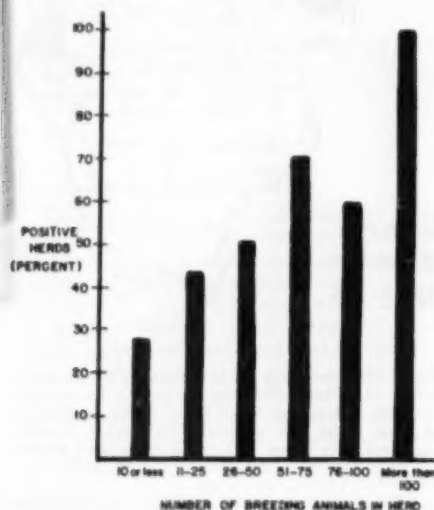
From 1944 on, complete agglutination at a titer of 1:25 was considered positive, and incomplete agglutination at a titer of 1:25 was considered suspicious. One might expect that there would have been a higher percentage of reactors after 1944 than before, but this was not so. Among the 3,390 animals tested from 1938 through 1943, 4.9 per cent were recorded as suspicious, and 14.0 per cent as positive. Among

TABLE 3—Relation of Size of Breeding Herd to Incidence of Swine Brucellosis

Animals in herd	Total herds (No.)	Positive herds (No.)	Positive herds (%)
10 or less	374	103	28.5
11-25	377	166	44.1
26-50	172	94	54.6
51-75	55	38	69.1
76-100	10	6	60.0
over 100	6	6	100.0
Total	994	413	41.6

the 16,547 animals tested from 1944 through 1948, 2.5 per cent were recorded as suspicious and 11.3 per cent as positive. Thus, the total number of reactors was 18.9 per cent when 1:50 was considered positive, and 13.8 per cent when 1:25 was considered positive.

Of the 994 herds tested, 413 (41.6%)



Graph 1—Relation of size of breeding herd to incidence of swine brucellosis in Illinois, 1938-1948.

were positive, 82 (8.2%) were suspicious, and 499 (50.2%) were negative. If a herd contained one or more positive animals, it was considered positive; if it contained one or more suspicious, but no positive, animals it was considered suspicious.

The numbers of herds tested and the percentages of positive herds are shown for each county in figure 1. The numbers of pigs tested and the percentages of positive pigs are shown for each county in figure 2. There is a wide variation between counties in incidence both of positive animals and of positive herds. One reason for this is probably that the number of herds studied in any one county was so small that differences due to random distribution were not eliminated.

The relation of size of breeding herd to occurrence of brucellosis is shown in table 3 and graph 1. Three factors should be mentioned in interpreting these figures. First, in the two largest categories there are too few herds for significance. Second, while it is assumed that all the animals in each herd were tested, there is no assurance that this was true for any particular herd. It is probable that some animals were missed in some of the herds. Third, the incidence of reactors can not be considered a true index of the incidence of *Brucella* infection. It is well known that the agglutination test may fail to detect infected swine. Despite these strictures, it is clear that the larger the herd, the greater is the probability that it is infected with brucellosis. Of the herds with 10 or fewer breeding animals, 28.5 per cent were positive. The percentage of positive herds increased progressively with herd size, 69.1 per cent of the herds with 51 to 75 breeding animals being positive.

The relation of size of breeding herd to incidence of positive reactors in infected herds is shown in table 4. In a little over a third of the herds, less than one-tenth of the pigs reacted. This figure is misleading, however, for it includes data on 103 positive herds of 10 pigs or less. In most of these herds, if a single animal was positive, the infection rate would be more than 10 per cent. As a result, only 3.9 per cent of the herds in this group contained 10 per cent reactors or less. If this group of herds is eliminated, it is seen that less than 10 per cent of the pigs were reactors in 47.7 per cent of the 310 larger herds. Less than one-fourth of the pigs were reactors in two-

thirds of the herds, and more than half the animals were reactors in only 14.5 per cent of the herds.

DISCUSSION

The figures obtained in this analysis of the results of blood testing do not necessarily represent the true incidence of brucellosis in Illinois swine or swine herds. The animals and herds tested were not a random sample of the population. Many known and unknown factors operated in "selecting" them for testing.

Some of the herds were tested because abortions had been observed. Their inclu-



Fig. 2—The incidence of brucellosis reactors in Illinois swine, 1938-1948. The upper figure is the number of animals tested; the lower figure is the percentage of animals which was positive. The shaded counties are those from which 11 or more herds were tested.

sion would make the recorded incidence of brucellosis tend to be higher than it actually is.

Other herds were tested because they were enrolled in an extension project whose purpose was the elimination of brucellosis

being practiced to eliminate reactors. When only the first test made on each herd was included, it was found that 11.8 per cent of 19,937 swine were positive, and 2.9 per cent were suspicious.

Positive swine were found in 41.6 per

TABLE 4—Relation of Size of Breeding Herd to Incidence of Positive Brucellosis Reactors

Animals in herd (No.)	Positive herds (No.)	Percentage of reactors in herd									
		10% or less herds		11-25% herds		26-50% herds		51-75% herds		76-100% herds	
		(No.)	(%)	(No.)	(%)	(No.)	(%)	(No.)	(%)	(No.)	(%)
10 or less	105	4	3.9	51	49.6	22	21.3	14	13.6	12	11.6
11-25	166	72	43.4	45	27.1	25	15.1	15	7.8	11	6.6
26-50	94	46	49.0	17	18.1	17	18.1	7	7.4	7	7.4
51-75	38	22	57.9	3	13.2	4	10.5	4	10.5	3	7.9
76-100	6	4	66.7	1	16.7	1	16.7	0	0.0	0	0.0
Over 100	6	4	66.7	2	33.3	0	0.0	0	0.0	0	0.0
Total	413	152	36.8	121	29.3	69	16.7	38	9.2	33	8.0

by a test and slaughter program. Some of these herds may have had abortions, while others were enrolled because their owners were progressive farmers who wished to control all diseases possible. The inclusion of such good herds might make the recorded incidence of brucellosis lower than it actually is.

A refinement in the present study over that reported by Graham and Levine is the elimination of repeat tests on the same herd. If culling were practiced between tests, a lower incidence would be expected in repeat tests. The incidence of positive reactors was 11.1 per cent in 20,924 samples in the earlier study and 10.8 per cent in 47,502 samples in the present one. However, when repeat tests were eliminated, and only the results of the first test on a herd were included, the incidence of reactors in the present study was 11.8 per cent. Elimination of this factor thus increased the observed incidence by 9.3 per cent.

No claim is made that the observed incidence of 11.8 per cent is the incidence of brucellosis in the state at large. Because of the factors discussed above, one can not expect to learn the true incidence of brucellosis by analyzing the records of diagnostic laboratories. A blood testing field survey of a random sample of farms would be required for this purpose.

SUMMARY

In the ten years, July, 1938, through June, 1948, 10.8 per cent of 47,502 swine blood samples from 994 Illinois swine herds were found positive to the agglutination test for brucellosis. These samples included repeat tests on herds in which culling was

cent of the 994 herds studied; only suspicious and negative animals were found in 8.2 per cent of the herds.

The incidence of positive herds increased progressively with size of herd from 28.5 per cent of 374 herds containing 10 or less breeding animals, through 69.1 per cent of 55 herds containing 51 to 75 breeding animals to 100 per cent of six herds containing more than 100 breeding animals.

In 310 herds of 11 or more breeding animals, 47.7 per cent contained less than 10 per cent reactors, and 14.5 per cent more than 50 per cent reactors.

Graham, Robert, and Levine, Norman D.: A Serologic Survey of Swine Brucellosis in Illinois. Proc. Second Inter-American Congress on Brucellosis, 1949 (in press).

Farmer's Question Corner

Veterinary public relations are being approached from a new angle in a series of releases from the American Foundation for Animal Health, sponsored by the Associated Serum Producers.

Under the title "Farmer's Question Corner," this new feature presents a question and answer discussion of some current animal health problems. Among those which are included in the first series are Anaplasmosis—Cattle Killer; The Great Milk Thief—Mastitis; Facts About Shipping Fever; How to Control Swine Erysipelas; The Nation's Worst Swine Killer; Answer to Swine Brucellosis.

The wedding of research and practice in veterinary medicine is often a shotgun affair.—H. E. Kingman, Sr., D.V.M., Wyoming.

Listeria Monocytogenes Isolated from Chinchillas

In August, 1949, an outbreak of listeriosis occurred in a herd of 130 chinchillas in Washington, D. C., and 14 animals died of the disease in eighteen days. In October, 1949, another case occurred in a herd of 14 chinchillas in Virginia. Three animals from the herd in Washington, D. C., were autopsied. One of these had been brought to the laboratory alive and was sacrificed the following day. A chinchilla sent from Virginia died previous to its arrival at the laboratory.

The following information was obtained from the owner of the Washington herd: There were no domestic animals on the premises and the chinchillas were confined by pairs in their cages. Presumably, the young were in the cages with their parents. The hay for feeding was stored on raised platforms to minimize rodent contamination, but the owner had occasionally observed small lumps of chicken and cow manure in the hay. Treatment with a drug containing sulfathiazole, sulfadiazine, and sulfamerazine was begun after the 14 animals had died. No losses occurred thereafter, but it appears that the natural termination of the outbreak may have coincided with the beginning of drug therapy.

The symptoms observed included discomfort in the abdomen as evidenced by the animal's assuming a position as though in pain in that region; abnormally shaped droppings with no diarrhea; torticollis; and a tendency to lie on one side, returning to this side immediately if placed in another position. Animals of all ages were susceptible. Some of the animals were found dead in the pen by the owner, having shown no symptoms prior to death.

On postmortem examination, there was impaction of the cecum in 2 cases. The liver of all 4 animals contained small, grayish white foci that ranged from a pin point in size to about 1 mm. in diameter. The spleen was slightly enlarged in every case, and the small intestines of 2 animals showed a slight hemorrhagic enteritis. The left adrenal gland was twice the size of the right adrenal in 1 case.

Microscopic examination revealed numerous microabscesses in the livers of all 4

animals, scattered microabscesses in the spleens of 2, a single microabscess in each medulla of the kidneys of 2 animals, and small foci of round cell infiltration in the cortex of the brain of 3 animals. The enlarged adrenal gland noted on postmortem examination showed several large areas containing necrotic foci. The submucosa and mucosa of the large intestine of 1 chinchilla contained several necrotic foci. This animal was one of those showing no impaction on postmortem examination. After appropriate staining, small gram-positive organisms morphologically similar to *Listeria monocytogenes* were seen in the microabscesses observed on histologic examination.

Bacteriologic cultures from the brain and liver of all 4 animals revealed an organism morphologically and culturally similar to *L. monocytogenes*. In order to determine its serologic relationship to a known culture of *L. monocytogenes* recovered from a goat, formalin-killed antigens were prepared from each brain culture of 3 chinchillas and from the known stock culture. These four antigens were used to hyperimmunize 4 rabbits serologically negative to *L. monocytogenes*. Three rabbits were injected with antigen from each of the three isolated brain cultures and the fourth rabbit was injected with the antigen of the stock culture. Each rabbit was injected three times, at weekly intervals, with 1 cc. of the formalized antigen, the first two injections being given subcutaneously and the last one intraperitoneally. One week following the final injection, the rabbits were bled by heart puncture and each of the unknown sera was tested against its homologous antigen and against an antigen prepared from the stock culture of *L. monocytogenes*. In all tests, agglutination occurred in dilutions of 1:100, 1:200, and 1:400. The serum from the rabbit immunized against the stock culture was tested against the three cultures recovered from the chinchillas, and in all instances agglutination occurred in dilutions of 1:100, 1:200, and 1:400. The negatively reacting sera taken from the rabbits before inoculation failed to agglutinate in any of the above dilutions, when used as controls in the agglutination tests.

On the basis of the cultural characteristics of the organisms recovered from the chinchillas and their serologic relationship with a known culture, it was concluded that the organisms recovered from the chinchillas were strains of *L. monocytogenes*.

The liver appeared to be the organ of

From the Pathological Division, Bureau of Animal Industry, Agricultural Research Administration, U. S. Department of Agriculture, Washington, D. C.

choice for recovery of the organism as it showed the most consistent typical pathologic changes, although *Listeria* was also recovered from the brain tissue in all the animals examined, including those showing no macroscopic or microscopic lesions. *L. monocytogenes* was also cultured from all those tissues showing microabscesses, but for serologic identification only brain cultures were used.—W. T. Shalkop, D. V. M., Washington, D.C.

Infectious Anemia in Horses

Working at the University of Pennsylvania, School of Veterinary Medicine, M. Dregus, M.D., found that, when 16 horses were inoculated with the virus of equine infectious anemia, the serum or plasma produced hemagglutination during the early stage of acute illness. The titer more or less decreased in the subacute stage. It was possible to exclude infectious anemia several times by the negative outcome of this test in field cases. The results reported (*Vet. Exten. Quart.*, 116, Univ. of Pa., Oct. 21, 1949) do not indicate whether the hemagglutinin is connected with the infectious agent, the antibodies, or some pathologic component in the blood.

The programs for eradication of this disease need to be determined after it is known how long the blood of so-called clinically cured or convalescent horses remains infectious.

F. Kral, in the same Bulletin, reports that in a study of 14 anemic horses it was found that the blood of the donors was continually capable of causing the disease over a period of twelve years. The greatest sources of infection are blood and urine. The virus enters the body of the susceptible animal through the injured skin or mucous membranes. Ingestion and intraocular instillation are believed to be the two most important sources of spread in nature.

The incubation period may be as short as one day or as long as ninety-three days, according to the author. Duration of reaction also varies from very short and very slight, that is, a very few hours, to as long as eighteen days and fatal termination.

The best way to eliminate the disease is to destroy all known cases of infectious anemia. In order to do this, it would be desirable to require the branding of all horses known to be reactors. The method of testing animals to determine whether they are carriers involves the inoculating of each of

2 horses with the blood of the other. If 1 horse suffers from swamp fever, the other will show a reaction, and both are useless thereafter. Such a loss is considered insignificant compared with the damage that could be caused by using an infected horse. If both horses are infected, the results are inconclusive, but this has never occurred in the tests reported.

Dr. Kral concludes that swamp fever of horses and pernicious anemia of man are separate and distinct blood diseases.

Blood Test for Tuberculosis

A new blood test for tuberculosis in human beings is said to out-strip previous methods in simplicity, speed, and accuracy. It was described to the New York Tuberculosis and Health Association by Sidney Rothbard, M.D. In some 1,200 persons tested, tuberculosis was spotted in 92 per cent of the active cases. Because the new test gives an accurate measure of the degree of infection, it can be used for spotting purposes, and also to follow the course of the disease during treatment.

The test is based on the complement-fixation reaction.

The Nonsurgical Capon.—The making of capons by planting pellets of diethylstilbestrol subcutaneously in the neck (behind the ears) of cockerels and cocks has passed the stage of imaginative fiction. Even the meat of roosters retired for superannuation gets as tender and savory as young turkey by this simple process of neuterization. The bulletin of the Veterinary Academy of France (June, 1949) recommends pellets of 12 to 15 mg. and a mechanical implanter of the magazine type for the treatment of many birds quickly. Dr. Frank C. Tucker, poultry specialist, proved up the virtue of this treatment several years ago in Indiana, but information concerning the extent of its use remains unavailable.

A New Phosphatase Test.—A new phosphatase test that is reported to be simple and universal for all dairy products (*Science*, 110, (Nov. 4, 1949):480-481) has been developed. Previously, certain dairy products such as ripened cheese and chocolate milk could not be tested for underpasteurization. The details of the method are described, as are its uses and its differences.

Anaplasmosis in Michigan

A Case Report

G. R. MOORE, D.V.M., M.S., W. F. RILEY, D.V.M., and E. A. WHITE, D.V.M.

East Lansing, Michigan

FOR MANY years, anaplasmosis has been one of the major cattle diseases of the Southwest. From time to time, cases have been reported farther north but, to the best of our knowledge, the disease has never been recognized, or at least it has never been reported in the literature, as having occurred in Michigan. This fact has interested us for some time, especially in recent years when thousands of cattle from anaplasmosis areas have been shipped into Michigan annually. In view of the high incidence of carrier animals in areas such as Texas, New Mexico, and Oklahoma, from which many of these transported animals originate, it is certain that we have many carrier animals in Michigan. We also have large numbers of mosquitoes, horseflies, and other blood-sucking insects that are known vectors of the disease. As a consequence, we have suspected for a long time that anaplasmosis does occur in Michigan occasionally in a mild form, and that we have failed to recognize it in the past. In the following case report, we believe that we had a definite clinical case of anaplasmosis and that we have demonstrated beyond any reasonable doubt that the condition was due to *Anaplasma marginale*.

On October 5, one of us (W.F.R.) was called to see a 3-year-old Holstein-Friesian cow in the vicinity of Lansing, Mich. She had freshened six weeks previously, and had been in good health and production up until the evening before the call. On arrival at the farm, examination revealed icteric conjunctiva, vulva, and skin. The icterus was particularly noticeable in the skin of the teats and udder. There was extreme constipation. The animal showed external evidence of extreme anemia. The heart was loud and the pulse rate was over 100. The animal was weak and staggering, completely off feed, and there was a complete cessation of milk production. A test of the urine for ketone bodies was negative

and a blood sample was taken and returned to the laboratory for analysis which revealed the following: red blood cell count 1,400,000, hemoglobin 16 per cent, white cell count 22,050. A Wright's stained film revealed numerous Anaplasma-like bodies in the red cells. On the basis of these findings, a tentative diagnosis of anaplasmosis was made but the possibility of a cobalt deficiency was not entirely ruled out.

It was decided to treat the cow along the lines generally recommended for the symptomatic treatment of anaplasmosis. On October 6, the cow received a transfusion of 3,000 cc. of whole citrated blood intravenously, the donor being a healthy cow from the same herd. At the same time, we administered 500 cc. of 50 per cent dextrose solution and a mineral-vitamin preparation was given *per os*. On October 7, another transfusion of 3,000 cc. of blood was administered. By this time, the cow was much improved and made a slow but uneventful recovery.

In order to find out definitely whether this was a case of anaplasmosis, we decided to do some experimental work in an attempt to prove or disprove our diagnosis. Before any treatment was given to the cow, 20 cc. of whole blood was obtained from her and injected intravenously into a day-old calf. Also, blood samples were taken from her and from 9 other typical healthy cows in the herd and submitted for laboratory analysis to determine the blood calcium, phosphorus, magnesium, hemoglobin, and vitamin C levels. Red cell counts and cell volume determinations were run. Table 1 gives the results of this blood analysis of the 10 cows.

Cow 2, "Pearl," was the anaplasmosis suspect. It will be noted that of the 9 normal cows, the various laboratory findings were all well within the normal range of values for these items. In the case of the anaplasmosis suspect, there was a marked decrease from the normal hemoglobin, as expressed in grams per 100 cc., from the normal of 10 to 14 down to 3.27, and the red cell count was 1,420,000 as compared

From the Department of Surgery and Medicine, Michigan State College, East Lansing.

to the accepted normal of 6 to 8 million. The cell volume was down to 10.5. This is typical of the blood findings in anaplasmosis. The calf that was injected with blood from the anaplasmosis suspect on

servations, we have concluded that the cow in question definitely had anaplasmosis. The clinical picture presented by her was typical of the disease. Bodies indistinguishable from *Anaplasma marginale* were

TABLE 1—Blood Picture of 10 Cows from Herd in which an Anaplasmosis Suspect Was Found

Cow	Blood Ca	Plasma		Hemoglobin Gm. per 100 cc.	Red Cell Count	Cell Volume	Vitamin C mg. per 100 cc.
		Inorganic Phosphorus per 100 cc.	Magnesium				
Agnes	11.1	6.04	2.72	12.83	6,400,000	30.0	.362
*Pearl	11.0	4.98	2.34	3.27	1,420,000	10.5	.151
Lois	11.3	3.98	2.50	12.45	7,340,000	29.5	.354
Eastbell	11.3	4.86	2.40	11.95	7,780,000	28.0	.330
Fern	11.1	4.36	2.51	11.60	6,790,000	27.5	.241
Elsie	11.1	3.33	2.32	13.10	6,200,000	30.0	.273
Jessie	11.4	2.71	2.40	12.45	7,110,000	27.0	.330
Erma	11.3	5.93	2.46	13.35	6,700,000	31.5	.362
Wilma	10.5	6.01	2.13	13.77	6,800,000	32.5	.330
Adelle	12.2	5.61	2.43	11.23	7,080,000	27.5	.338
Average Normals	10-12	4-6	2-3	10-14	6-8 million		.40

*Anaplasmosis suspect.

October 6 remained normal in every observable way for the next twenty days. Blood samples were taken twice weekly, films were made and stained with Wright's stain and examined for the presence of *Anaplasma* bodies.

On November 26, *Anaplasma* bodies were found in the blood of this calf in large numbers. On this day, its temperature was 104.2 F. and intermittent symptoms of trembling and erection of the hair were observed. Aside from this, there were no other clinical symptoms, and these symptoms subsided within twenty-four hours.

At this time, a second calf was procured and a splenectomy was performed by two of us (Moore and Riley) and 20 cc. of blood from calf 1 were procured and injected into this calf on November 29, the date of the splenectomy operation. This calf remained normal until December 19, when a temperature reaction occurred, together with marked clinical manifestations. On this day, *Anaplasma* bodies appeared in large numbers in the red cells. On December 19, the calf's temperature was 103, on December 21, 104.6 F. It remained high until December 23 when it began to recede and was down below 102 F. by December 24. During the time of this temperature reaction, the calf showed great prostration, icterus, anemia, and its red cell count dropped from the previous normal of 8,900,000 to 4,000,000. After December 24, the calf made an uneventful recovery.

On the basis of the above data and ob-

servations in the red cells. She responded well to standard symptomatic treatment for anaplasmosis, and we were able to transmit the suspected infective agent through two animal passages, and to produce the typical symptoms of anaplasmosis in a splenectomized calf.

Syringe Care

An empty 10-cc. vial, cleaned, filled with ether, and fitted with a rubber diaphragm stopper, makes a handy item for the examining room and the doctor's bag to quickly dissolve the oil in syringes used for procaine penicillin-in-oil injections. Alternately withdrawing and injecting the ether in the vial will give a clean syringe. If desired, alcohol may be used after the ether has been expelled for the last time.—A. A. Barry, D.V.M., Massachusetts.

We're Sorry

Dr. O. W. Seher calls our attention to the fact that in the November, 1949, JOURNAL, p. 356, we misquoted the remarks which he made before the Institute on Public Health Practices for Veterinarians at Springfield, Ill., in March, 1949. He informs us that the statement credited to him "is in error on two counts: first, the Bureau and not the Meat Inspection Division was established in 1884; second, 86 million animals were inspected in 1948, instead of 86 million pounds of meat."

NUTRITION

The Role of Proteins in Relation to Resistance to Infection

PAUL R. CANNON, M.D.

Chicago, Illinois

CURRENT views concerning the chemical nature of immune substances in the blood first began to take definite form about two decades ago. Before then, specific antibodies had been looked upon as vague materials of unknown nature, possibly catalysts, which perhaps were adsorbed to proteins. Gradually, however, accumulating evidence pointed increasingly to the probability that antibodies are definite chemical substances, plasma globulins. In consequence, it became logical to assume that conditions underlying the formation of plasma proteins also determine the formation of antibody protein; and, inasmuch as dietary protein is the ultimate source of blood protein, it seemed probable that diet must be important in the formation of specific antibodies. More importantly, interference with the intake of food, as in starvation, might lead to an impaired capacity of the affected individual to fabricate plasma proteins so that, in time, a reduced capacity to form antibody protein might also ensue.

FOOD INTAKE AND PROTEIN RESERVE

Our interest in this problem began shortly before World War II. At that time, it had become evident that protein intake determined both the formation of plasma albumin and plasma globulin; and Whipple and his associates had shown the important role of tissue protein stores in resistance to infections and intoxications. The so-called protein reserves thus assumed prominence as an important source of material active in the protection of various organs against the adverse effects of noxious agents, whether infections or intoxications. Whip-

ple and his collaborators had also demonstrated the pathologic consequences of depletion of the protein stores, whether as a result of wasting disease, infection, or in other ways. It seemed likely, therefore, that if the protein stores should become markedly depleted because of disease or of an inadequate food intake, there would be interference with the acquisition of immunity as a result of the malfunctioning of the immune mechanisms. At that time, little information was available concerning the chemical structure of antibody protein, and, indeed, chemical evidence of the amino acid composition of globulin was scanty. Soon, however, analyses became available which made it apparent that the *gamma* fraction of globulin is a complete protein containing all of the indispensable amino acids. In consequence, it also becomes obvious that such a large and complex protein molecule could be fabricated only from a rich source of amino acids available in the tissues or in dietary protein. Although such amino acids may be available for a time in the various body tissues which contribute to the formation of antibodies, such source material must eventually fail if it is not steadily renewed by a proper diet.

SYNTHESIS OF ANTIBODIES

In our first experimental approach to the problem of antibody formation as a phase of nutrition, attention was directed particularly to the constructional aspects of the process. That is, we wished to make available to the antibody-forming tissues all the building stones necessary for the fabrication of a complex globulin. Later, it became obvious that in addition to the presence of constructional materials, activating mechanisms which enter into the synthesis of protein were also essential. Thus, for the

A condensation of the talk presented by Dr. Cannon, chairman, Department of Pathology, University of Chicago, at the Nutrition Conference for Veterinarians, Peoria, Ill., on Sept. 1, 1949.

proper utilization of an assortment of amino acids which are to be built into a protein structure, there must be adequate energy for the act of synthesis. There must also be the proper tissue enzymes essential for the activating process. Moreover, there must be certain vitamins and, presumably, certain inorganic salts which enter into the processes of synthesis. Conversely, these stores of constructional and activating materials may become depleted because of a failure to ingest enough protein or energy to maintain them.

Similarly, an inadequate intake of certain vitamins may lead to loss of appetite and a resulting caloric insufficiency, resulting eventually in depletion of the tissue stores of vitamins, thus impairing the mechanisms of tissue protein synthesis. In this way, presumably, interference with the processes of antibody formation as a result of vitamin deficiencies occurs. Moreover, even in the presence of an adequate intake of energy foods, protein, and vitamins, there may be a failure to absorb these nutrients properly because of the operation of certain so-called "conditioning factors." Thus, as a result of metabolic disease, fever, chronic diarrhea, obstructive lesions of the gastrointestinal tract, infections, or intoxications (such as hyperthyroidism), there may be enough interference with the absorption and utilization of food constituents to cause an interference with the processes of protein synthesis, giving a so-called secondary nutritional deficiency. Thus, even with an adequate food supply or even an adequate intake, essential nutrients cannot be effectively utilized; and, in an infectious process, the failure to maintain the immune mechanisms may lead eventually to deterioration and failure. For a more complete analysis of the problem, the reader is referred to the "Proceedings of the Gould Symposium on the Plasma Proteins," appearing shortly in book form (C. C. Thomas Co., Springfield, Ill.).

DEFICIENCIES RELATED TO PROTEIN DEPLETION

A study of tissues from patients who have suffered from wasting disease helps to elucidate some of the points just mentioned. For example, examination of the liver of a patient who died as a result of severe protein deficiency disease reveals a loss of much cytoplasmic protein material in the

liver cells. It is from such cells, presumably, that the plasma proteins originate, and the loss of such protein reserve material leads to the inability of these cells to maintain the fabrication and transference to the blood stream of the plasma proteins. There is now evidence that much of this material within the liver cells consists of enzyme systems of various sorts, and of vitamin-protein combinations. For example, in experimental animals subjected to severe protein depletion, the reserves of riboflavin may be reduced as much as 50 per cent. Similarly, there may be a marked reduction in activity of certain of the enzyme systems. It is not surprising, therefore, that when poisons or infectious agents come in contact with such depleted cells, the cells are less able to counteract the injurious action of the infectious or toxic agents.

In the course of severe protein deficiency other organs also suffer. Thus, there may be a marked loss of bone marrow tissue, severe enough to represent a loss of reserve supplies of marrow cells of vital importance in times of stress. In the event of an intercurrent infection, such a patient quickly loses the capacity to regenerate leucocytes, and may succumb to the infection for that reason. It has been shown experimentally that the bone marrow of a severely protein-deficient animal soon loses its ability to supply leucocytes to the blood stream after successive stimulations with a leucocytosis-inducing material, such as turpentine. After adequate repletion of such animals with a good diet, however, the regenerated bone marrow recovers its former capacity to react to such stimuli.

RESULTS OF DEPLETION

We now know that the specific antibodies of the blood are found mainly in one component of the plasma, the *gamma* globulin fraction. They can be separated from the blood serum and concentrated by various chemical methods in this fraction. Indeed, the so-called *gamma* globulin fraction of blood plasma is being used increasingly for the prevention and treatment of measles because of the presence in it of antibodies to the agents causing measles. It has been shown, moreover, that in conditions of severe protein depletion in the human being, as in nephritis or nephrosis, there is a diminution of the amount of *gamma* globulin, and it is due presumably in large

measure to this fact that such subjects are so likely to succumb to overwhelming streptococcal or pneumococcal infections.

When we started to study some of these problems, we decided to produce severe protein deficiency in adult male white rats in order to see in what ways the deficiency might affect the activity of the animals. These animals could be fed diets adequate in every dietary essential except protein. In the course of a few weeks the rats became hypoproteinemic and anemic, lost weight, their organs underwent atrophy, and they lost most of their available protein stores. Study of the blood plasma revealed a loss of all the fractions characteristically demonstrated by electrophoresis. First, we wished to see the effect of such severe protein depletion upon the capacity of the animals to fabricate specific antibodies. We soon found that such depleted animals manifested a markedly impaired capacity to liberate antibodies into the blood plasma after immunization with bacteria or with sheep's erythrocytes. The animals also became more susceptible to induced infections of various sorts, and they could not be immunized against infectious agents as effectively as could well-nourished animals. However, dietary repletion by feeding of good quality protein or even a mixture of crystalline amino acids caused the animals to recover their ability to form specific antibodies.

Exhaustion Reached Only After Prolonged Malnutrition.—We have shown that the loss of the protein stores and the capacity to form antibodies is a function of time. For example, well-nourished rats fed a diet containing no protein whatever can maintain their capacity to form antibodies for a matter of several weeks. But gradually they lose the capacity to form antibodies, due, presumably to the loss of protein stores necessary to supply constructional and activating materials for the processes of antibody synthesis. From the practical point of view, this demonstration is important in showing that conditions of malnutrition must be prolonged and severe before the danger point of exhaustion is approached. Too often, this fact is overlooked and some workers have expected a complete collapse of defense mechanisms after only a few days of a low protein diet. This naive attitude fails to recognize the importance of the protein stores as a potential reserve.

Despite the tenacity with which the mammal holds on to its protein reserves, the obvious lesson from the experiments of recent years is to do all possible to prevent the loss of these reserves. This means that a diet adequate in calories, vitamins, and protein is essential to maintain the integrity of the protein stores. Otherwise, a steady depletion of protein reserves may lead in time to impending exhaustion; and when an infection develops then, the consequences may be severe and even lethal because of the inadequate reactivity of the depleted organism to mobilize the immune mechanisms.

Animal Protein Factors

An 8-page leaflet on this subject has recently been released by the Research Service of the Ralston-Purina Company, St. Louis, Mo. The leaflet defines the animal protein factors, discusses some of the symptoms of deficiency of vitamin B₁₂, and then explains in simple, direct statements how the findings in the field may be applied to the feeding of animals.

A bibliography of 33 titles is listed to provide supplementary reading for those interested in specific phases of the manner in which vitamin B₁₂ and other elements of the animal protein factors may be used to best advantage by veterinarians.

Poisoning from Seed Oats

Mercurial poisoning may be caused by the feeding of grains previously treated with ceresan (ethyl mercuric phosphate) in anticipation of their use as seed. Cattle and pigs are more often the victims, since oats is more likely to be the grain treated. Several cases of poisoning are described in the *Bi-Monthly Bulletin* of the North Dakota Agricultural Experiment Station.

Urinary calculi may begin to form while steers are on range, but they are most numerous in steers being fattened on grain sorghum in drylot. Adding phosphorus to the ration reduces the trouble, while adding calcium aggravates it.—*USDA*.

Dairy cattle feeding is based upon good roughage. The thumb rule guide is to feed the dairy cow all the good quality roughage she will take daily, and then balance with the grain needed.—*F. C. Fountaine, Ph.D., Missouri*.

EDITORIAL

Telephone Directory Listings of Veterinarians

THE PURPOSE of this editorial is to supplement the work of the Special Committee on Ethics which for the past five years has carried on a program, primarily educational, on certain aspects of professional ethics. Much interest has been aroused among constituent associations and many of them have appointed their own committees on ethics to work with the AVMA committee.

The AVMA committee has also recommended that constituent associations adopt the AVMA Code of Ethics so that veterinarians generally may be guided by, and subject to, uniform standards and requirements of professional conduct. As a result, a number of state veterinary medical associations now have codes identical with that of the parent organization.

The work of the Special Committee on Ethics has been fruitful and much progress has been made, as reflected in the annual reports of the committee. To make its program still more effective, the committee has recommended for the past three years that the AVMA call the attention of members specifically to certain provisions of the Association's code and by-laws, particularly infractions relating to directory listings which are one of the more obvious faults frequently encountered. The purpose of such AVMA action would be to direct attention to accepted standards for directory listings, to ask that any improper or unethical listings of its members be corrected within a reasonable time, and to indicate that charges can be preferred in the case of failure to make the needed correction.

The responsible officers of the Association have been reluctant to initiate any program which would imply disciplinary action on a national scale, believing that most cases of faulty professional conduct are most simply and effectively handled on a local or state basis, i.e., through the local and state veterinary medical associations. However, it is believed that the work of the Special Committee on Ethics, especially with respect to the elucidation of what is right and what is wrong in directory listings of veterinarians, has now reached the

point where a positive effort should be made to get results.

DIRECTORY ADVERTISEMENTS

One of the more common sources of complaint, locally at least, is the failure of some veterinarians to observe the rules for ethical listings in the classified sections of telephone directories or in "Red Book" directories. On this subject, the AVMA Code of Ethics says:

Paragraph 10.—Advertising in a city, commercial, telephone or any widely circulated directory is a violation of this code.

Paragraph 11.—A member who permits his name to be listed in directories in bold-face type or who advertises his name or hospital or institution in any way differing from the standard style, type, or size used in the directory for the listing of professional groups (physicians, dentists, lawyers, nurses) is subject to the charge of unprofessional conduct.

Paragraph 12.—It is also unethical for a veterinarian to allow his name to be printed in public directories as a specialist in the treatment of any disease or in the performance of any service within the scope of veterinary practice.

Paragraph 13.—In principle, this section of the code of ethics is intended to improve the listing of names in such a way as to give all of them identical visual prominence.

Paragraph 10 is interpreted to refer to "advertising" in the usual sense of the term; no ethical professional man actually "advertises" in any medium.

Violations of ethical standards for directory listings can be charged to several causes: ignorance of ethical requirements; thoughtlessness or carelessness about this aspect of professional behavior; yielding to pressure of misguided directory space salesmen who do not realize, apparently, that veterinarians have the same rules of conduct as other ethical professional groups; and deliberate disregard of ethical standards. In years past, some new and inexperienced graduates made the mistake of employing bold-face or display types of listings until they learned that such entries are

unethical. In recent years, it is unlikely that any graduates from the accredited veterinary colleges are not well informed on such matters, because practically all of them have been exposed to lectures and training on professional matters, including the important subject of ethics.

Much of the progress in recent years in eliminating unethical listings of veterinarians and other professional people from telephone directories has been made through the efforts of the local professional associations. Through frank and friendly discussion of the basic principles involved, it is usually possible to agree upon a course of action that will bring a high degree of cooperation and compliance among the practitioners in any given locality. The fact remains, however, that in some cities and areas, little has been done to "clean up" directory listings of veterinarians. Bad examples are easy to find, ranging all the way from bold-face listings to box and display insertions of one inch to quarter-page, and even half-page, in size.

ETHICS EXHIBIT AVAILABLE

During the past three years, the Special Committee on Ethics has carried on an active campaign directed principally to the correction of the rather common and obvious faults of directory advertising. As a part of that campaign, an exhibit was developed which portrays the rights and wrongs, the good and the bad, the ethical and the unethical, of such every-day matters as classified directory listings and professional cards. This exhibit has been shown at AVMA conventions for the past three years and at a number of state association meetings, where it has attracted real interest. The exhibit is available for loan to veterinary associations, upon request to the AVMA central office.

STRIP FILM ON CODE OF ETHICS

A 52-frame, 35 mm. strip film, "The Golden Rule for Veterinarians" has just been completed by the Code of Ethics committee, in cooperation with the AVMA staff, and it illustrates most of the important sections of the Code of Ethics. It will greatly aid in furthering the educational aspect of the committee's work and is available from the AVMA central office for use at meetings of state and local veterinary medical associations.

THE NEXT STEP

The requirements of the Code of Ethics relating to directory advertisements with which AVMA members are expected to comply have been quoted earlier in this article. Those paragraphs are only four out of thirty-four which set forth the standards of professional deportment for veterinarians. They are certainly not the most important features of the code as a whole, but they do pertain to matters which are too easily and too frequently ignored and which, therefore, are common causes of complaint and criticism. At the same time, these shortcomings are most capable of solution if the proper approach and a real effort is made. Violations should be handled on a local or state basis in so far as possible. If this is done, firmly and fairly, wherever they occur and whomever they affect, there will be few cases that will require referral of formal charges to the national association in the instances in which an AVMA member is involved.

Article X of the Administrative By-Laws relates to membership and provides not only for election to, but also for dismissal from, membership in the Association. The first sentence relating to dismissals reads as follows:

Violation of the Code of Ethics, conviction of a felony by a court of law, and activities prejudicial to the welfare of the veterinary profession shall constitute ground for dismissal from the membership.

It is believed that few if any members of the Association would seriously consider the risk of losing their good standing for the very slight and dubious advantage which might be obtained from an out-of-bounds directory listing. The whole spirit of proper professional conduct is too great and significant to be weakened by such relatively minor matters as infractions of directory listing standards. The first sentence of the preamble to the Code of Ethics says, "The honor and dignity of our profession lies in our obedience to a just and reasonable code of ethics set forth as a guide to the members." Surely, the provisions of the code relating to directory advertisements are just and reasonable and should be unhesitatingly complied with by every member.

The United States is now the mecca for education in medicine and in veterinary medicine.—Austin Smith, M.D., Illinois.

CURRENT LITERATURE

ABSTRACTS

Fowlpest Serum Produced from Hogs

In continuation of his earlier reports on this subject, the author now presents data on the results of treatments carried out in fowl affected with fowlpest, using a serum produced from hogs. In affected flocks, the treatment resulted in saving more than 60 per cent of the stock, while of the untreated animals, 92.2 per cent succumbed to the disease.—[Hegydi: *Field Experiences on the Use of Fowlpest Serum Produced from Hogs. Magyar allator. Lap.*, 3, (1949).]—F. KRAL.

Equine Virus Abortion

The causative agent of virus abortion of mares is identical with the virus of equine influenza. Virus abortion is, therefore, but a manifestation of equine influenza.

The virus first causes a septicemic state in mares. Entering through the placenta, it gives rise to serious anatomic changes, in consequence of which the fetuses either die and become expelled, or remain active until parturition, but succumb afterward to congenital weakness or pneumonia.—[Manning: *Studies on Infectious Abortion in Mares Due to a Filterable Virus. Acta vet. Hungar., Budapest*, 2, (1949):62.]—F. KRAL.

Lungworm Disease in Sheep

Larvae of *Dictyocaulus filaria* were observed on a pasture during five winter months—from December to April when the temperature dropped to 17 degrees below freezing. There was no evidence that their vitality was decreased. These findings are different from those of Wetzel and other authors who expressed the opinion that the frost destroys most of the larvae.—[Borchert and Timm: *Observation About the Lungworm Disease in Sheep and Examination of Larvae of Dictyocaulus Filaria. Berl. und Münch. tierarztl. Wchnschr.*, 12, (1949):168-173.]—F. KRAL.

Hog Cholera Vaccine

The virus of hog cholera may be deprived of its virulence by addition of 0.5 per cent crystal violet and incubation at 37 C. (100 F.) for fourteen days. If the virus is kept in the ice box instead of an incubator, the same effect can not be reached even after six months and using a greater concentration of crystal violet.

The vaccine, as a rule, does not cause fever or any other clinical reaction, a moderate rise of the temperature and feebleness being observable but exceptionally. When 5 cc. of the vaccine is in-

jected subcutaneously or intramuscularly, it produces an immunity of a high degree against challenge infection fourteen to twenty-one days later.

—[Biro: *Experiments with Crystal Violet-Vaccine Against Hog Cholera. Magyar allator. Lap.*, 16, 1947.]—F. KRAL.

Hypophysis Abscess in a Cow

The author describes a cow suffering from nervous excitement. Autopsy disclosed a fluctuating enlargement of the hypophysis, which was twice normal size.

The enlarged gland contained malodorous pus from which *Bacillus pyogenes* was isolated. The author also suggests a causal connection between a purulent alveolar periostitis and purulent rhinitis.—[Weidlich: *Hypophysis Abscess in a Cow. Deutsche tierarztl. Wchnschr.*, (1949):45-46.]—F. KRAL.

Canine Distemper

Puppies of immune bitches are resistant to the infection of distemper virus until 6 weeks of age.

The immunization of healthy dogs by means of the simultaneous treatment is regarded as a safe method, even in infected localities. It is capable of conferring a lasting immunity.

The active immunization of dogs against distemper consisted of the simultaneous method, applying the serum of hyperimmunized dogs (at least 20 cc.) and defibrinated blood of high virulence of dogs (2 cc.).—[Hoffman: *Studies on Distemper. Acta vet. Hungar., Budapest*, 2, 1949:89.]—F. KRAL.

Strangles in a Horse

According to an experiment in a horse, strangles was caused by a virus, in connection with infectious cough. The *Streptococcus equi* plays the same role as other facultative pathogenic germs, like, e.g., *Bacterium suispestifer** in hog cholera.—[Manning: *Etiology of Strangles. Acta vet. Hungar., Budapest*, 2, (1949):73.]—F. KRAL.

Rapid Multiplication of Brucella

The authors have developed a liquid medium for rapid multiplication of *Brucella* in cultures. The formula for the basic medium is: tryptose,

*The same results have been achieved by experiments of Kral in 1942. It was proved that the primary cause of strangles of horses is virus, and *Streptococcus equi* as secondary infection only.—F. Kral.

3.0 Gm; glucose, 2.0 Gm., thiamine HCL, 0.5 mg.; NaCl, 0.5 Gm.; distilled water, 100.0 ml.

The secret of success in this cultural procedure, however, is the feeding of large amounts of oxygen in a continuous stream of the pure gas which is supplied to a vigorously shaken culture all during the incubation period. The results of this work justify the conclusion that controlled atmospheres are fully as important as the constituents of the medium used. The rates of multiplication and the cell counts were greatly increased with this new and practical liquid medium through which a constant stream of pure oxygen was fed.—[Evelyn Sanders and I. Forest Huddleson: *The Influence of Atmospheric Gases on the Multiplication of Brucella*. *Am. J. Vet. Res.*, 11, (Jan., 1950): 70-75.]

Use of Stomach Tube in Cats

Because of difficulties incident to passing the stomach tube through the mouth of the cat, the possibility of the use of a nasal tube was investigated. It was found that tubes of 2.5 to 3.5 mm. in diameter can be pushed easily through the cat's nose. The tube goes through the lower nasal passage and, after passing the pharynx, its position can be ascertained by palpating the neck. Very seldom will the tube deviate into the windpipe. The tube through the nose makes it possible to determine easily the position of the tube, and to administer liquid medicines or liquid food, or to remove fluid from the stomach. The nasal tube may also serve for lavage of the stomach. Due to its very small dimensions, it is not, however, particularly suitable for that purpose, and it is therefore more advisable to use a mouth tube of greater diameter.—[S. Forenbacher: *The Tubeage of the Cat's Stomach Through the Nose*. *Vet. Archiv*, 19, (1949): 33-56].—E. FROELICH.

Enzoötic Encephalomyelitis of Swine

The immunity against enzoötic encephalomyelitis, acquired after the vaccination with an adsorbed vaccine, depended largely upon the age of the pigs, when 462 animals of different age were injected with 10 cc. of adsorbed vaccine, while 429 served as nonvaccinated controls. Not more than one month after vaccination, all animals were challenged, intracerebrally, with the virulent virus. From the total of 429 control pigs, only 25 (5.8%) did not contract the disease. Vaccinated pigs developed immunity which varied according to the age as follows: The immunity of pigs 15 to 25 days of age was almost nil. Of those vaccinated at the age of 30 to 40 days, 50 per cent developed immunity, and those vaccinated at the age of 45 to 60 days acquired a very high resistance. It is suggested, therefore, that in the course of prophylactic immunization, pigs be vaccinated at an age not less than 45 days. It is also advisable to vaccinate pigs 30 to 45 days old in areas where new outbreaks of the

disease occurred. However, not more than half of the animals can be expected to acquire immunity. The prospects for a successful vaccination are especially small under the age of 1 month. Pigs vaccinated under 45 days of age should be revaccinated one month later. It was observed in the experiments that vaccinated pigs which contracted the disease showed an incubation period prolonged for two to three days.—[E. Kárnja: *Immunization of Pigs against Enzoötic Encephalomyelitis with Adsorbed Vaccine*. *Vet. Archiv*, 19, (1949): 1-13].—E. FROELICH.

Raising Calves

The author, a practitioner, bases his observations on collective farm experience rather than controlled experiment. He believes that high calf mortality is caused by artificial conditions of feeding and housing, and recommends the following procedure: (1) Provide adequate feed, hygienic quarters, and a daily walk of 3 to 4 miles for the pregnant cow. (2) Allow the cow to lick the newborn calf. (3) Until 10 to 15 days old, allow the calf to suck five or six times a day from its own dam to assure the maximum utilization of colostrum and to avoid the evils of pail-feeding. (4) House the calf in a dry, unheated, well-ventilated building. Temperatures of 5 to 14 F. were well tolerated. At -34 F., blanketed, 1-day-old calves were found to have a body temperature of 102 to 103 F. (5) From 15 days to 5 months of age, gradually reduce the amount of milk the calf is allowed to suck and substitute cereal concentrates. At no time is the calf pail-fed. Exercise daily, 3 to 4 miles.

The author claims that the system reduced calf mortality from 85 per cent to 2.7 per cent, and raised milk production from an average of 1,295 l. (3,238 lb.) per lactation to 2,554 l. (6,387 lb.). The cows were not fed concentrates.—[P. M. Korzh (Kharkov Province): *On Calf Morbidity*. *Veterinariya*, 26, (Oct., 1949): 14-18].—R.E.H.

A Reflex Sign of Pregnancy in Cattle

Reflex depression of the spine resulting from slight pressure behind the withers was tested for its relationship to pregnancy in cattle, and 94 per cent accuracy is claimed for the method.

The tops of the spinous processes of the vertebrae at the withers were grasped between the thumb and forefinger. The hand was then passed backward with light pressure to the region of the ninth to thirteenth thoracic spinous processes. Here, the pressure was increased slightly for a few seconds and released. The animal was not struck or pinched.

The reaction seen in nonpregnant cows was a deflection or ventral curvature of the spine. The amount of deflection varied from 8 to 16 cm. The root of the tail was raised and the head was lowered. There was no resistance to the test.

Pregnant cows showed no such reaction, but often resisted by arching the back or attempting to evade the pressure. Hypersensitive cows some-

times crouched by bending the limbs, but did not depress the spine.

The reliability of the reflex was tested on 284 cows slaughtered in the Kherson (Ukraine) abattoir. Of the 92 cows shown to be pregnant post-mortem, 77 were detected per rectum, and 86 were diagnosed by the absence of the withers reflex. (The implication of the data as presented is that with the reflex method, the only errors were made by diagnosing 6 pregnant cows as open cows. The reverse error was not reported.)

The reflex disappeared ten to twenty-six days after conception, usually between the sixteenth and twenty-fifth days, as observed in 20 cows. It was impossible to elicit the reflex during the remainder of the gestation period. Tests on 10 cows showed a return of the reflex thirteen to sixteen days after calving. The test was, therefore, effective for early diagnosis of pregnancy, but useless to determine the age of the fetus because the same negative result was obtained throughout pregnancy.

The effect of age was tested in 120 pregnant cows, 10 of each age from 2 to 13 years. Of the 2-year-old heifers, 3 responded with the spinal deflection typical of nonpregnant animals. Of the remaining 110 pregnant cows, 4 showed the reflex. They were 4, 5, 8, and 12 years of age.

There was no difference in the reactions of nonpregnant animals with respect to age or time of year. Open cows did not give the reflex if emaciated, exhausted, suffering from cold, or if they had no follicles on their ovaries (atrophy). In tests on 20 open cows, the amount of spinal deflection was found to be greatest in the morning before feeding.—[G. T. Gavriljak (Kherson Agric. Inst.): *Reaction of Pregnant Cows to the Skin Reflex*. *Veterinariya*, 27, (1950):34-38.]—R. E. H.

PASA—Tuberculostatic

A procedure of synthesis of the para-aminosalicylic acid is described, by means of which a product of tuberculostatic action corresponding to that pointed out by other authors is obtained.

Comparative results are presented of the inhibiting action, *in vitro*, of streptomycin, promine, diason, sulfetron, and para-aminosalicylic acid over certain species of paratuberculous bacilli and over a strain of human tubercle bacilli. Streptomycin was approximately 10,000 times more active than the sulfonamides and 10 times more active than para-aminosalicylic acid. The effectiveness of the three sulfonamides studied is more or less analogous.

The para-aminosalicylic acid lacked action over the nonacid-resistant germs even in concentrations 50 times greater than those which were tuberculostatic.

The sensibility of the different strains of paratuberculous bacilli to the para-aminosalicylic acid varies within more or less wide range.

A derivative of toluidine, synthesized by the authors and which will be discussed in a later work, presents, *in vitro*, a tuberculostatic power

equal to that of streptomycin.—[J. Grillo and E. Krakauer: *On the Chemotherapy of Mycobacteriosis*. *Boletín Oficial del Colegio Médico Veterinario Nacional*. (Cuba), 1 and 2, (1949):7-9.]—O. A. LOPEZ-PACHECO.

Oestrus Larvae in Pharynx of a Mule

A mule was presented for examination with apparent symptoms of heaves. Owner reported unsuccessful attempts at medication *per os* as animal coughed up the medicine when it reached the pharynx. Upon percussion and auscultation, the existence of pulmonary emphysema was discarded. Inspiration and expiration seemed to diminish in depth but increased in frequency, simulating a cardiac dyspnea. A slight wheezing sound was located in the larynx. Upon manual exploration of the pharynx, Oestrus larvae were found. The administration of 100 cc. of weak Lugol's solution in each nasal fossa daily for seven days resulted in expulsion of the larvae and complete recovery of the patient with disappearance of symptoms of heaves.—[J. Lora: *Heaves Syndrome Simulated by Oestrus in Pharynx*. *Veterinaria*, (Spain) 13, (1949):599-600.]—O. A. LOPEZ-PACHECO.

Animal Parasites in Man

Man acquires most of the parasites of animals through his own carelessness; by ingestion of the eggs from fecally contaminated hands, ingestion of the intermediate stages in insufficiently cooked meat, or from intermediate hosts.—[Dorothy J. Hitchcock: *Parasites Transmitted from Animals to Man*. *Am. J. Med. Tech.*, 15, (1949): 258-263.]

Coccidiosis in Lambs

The bedding was a source of coccidial infection to young lambs. Lambs entering the feedlots passed very few oöcysts, but within 2 or 3 weeks the number rapidly reached a peak and then declined fairly rapidly. The species found most frequently were *Eimeria arloingi* and *Eimeria parva*.—[J. S. Dunlap, P. A. Hawkins, and R. H. Nelson: *Studies of Sheep Parasites. IX. The Development of Naturally-Acquired Coccidial Infections in Lambs*. *Ann. New York Acad. of Sci.*, 52, (1949): 505-511.]

Conglutinating Complement-Absorption Test

The conglutinating complement-absorption (CCA) technique and the hemolytic complement-fixation (HCF) test of the serum-dilution type have been compared by titrations of mallein antisera. The two tests appear to possess relatively comparable sensitivity. The conglutinating test is easy to read but does not permit differentiation of finer degrees of reaction. It may have some practical value in instances where it is necessary to know only whether reaction is absent or present, but not when a quantitative estimation of antibody and antigen content are needed.

With *Brucella abortus* suspensions, the CCA test was more sensitive than the HCF method.—[Christine E. Rice and R. J. Avery: *Studies of the Conglutinating Complement-Absorption Test. I. With Constant Complement. Am. J. Vet. Res.*, 11, (Jan., 1950): 98-104.]

Metabolism of Brucella

Using a new and improved liquid medium through which a constant stream of pure oxygen was fed while the culture was being agitated during incubation, the authors determined that the metabolism of *Brucella* is a rapid oxidation of glucose. The major end product is carbon dioxide.—[Evelyn Sanders and I. Forest Huddleson: *The Influence of Oxygen on the Metabolic Activities of Brucella. Am. J. Vet. Res.*, 11, (Jan., 1950): 75-83.]

Brucellosis in Male Guinea Pigs

Brucella suis was recovered in high concentration from the semen of 30 of 51 male guinea pigs exposed by subcutaneous injection, intraperitoneal injection, and feeding. Although the concentration of *Br. suis* in the semen was high, 1 male eliminating approximately 6,000,000 organisms in 0.10 cc. of semen, the infected males failed to transmit the infection to females.

Pathologic changes found in the experimental guinea pigs included abscesses, round cell infiltration of the lymph nodes, livers, spleens, testes, and epididymides. Complete cessation of spermatogenesis was common.—[Emma L. Hillaert, L. M. Hutchings, and F. N. Andrews: *Brucellosis in Male Guinea Pigs. Am. J. Vet. Res.*, 11, (Jan., 1950): 84-88.]

Sulfaguanidine in Coccidiosis

Evidence of coccidiostasis upon the first generation of schizonts was demonstrated when sulfaguanidine was added to the mash at the rate of 2.0 per cent or 0.5 per cent. At the concentration of 2.0 per cent, sulfaguanidine was coccidiocidal to the second generation schizonts in the mucosa. When the feeding of sulfaguanidine in the mash was begun immediately after infection, the effectiveness of the drug was influenced by the amount administered. The experiments did not include trials with the feeding of mash after a period of delay following experimental infection with the coccidia.—[R. A. Bankowski: *Effect of Sulfaguanidine upon the Developmental Stages of Eimeria Tenella. Am. J. Vet. Res.*, 11, (Jan., 1950): 130-136.]

Bisphenols in Coccidiosis

Three new compounds, 4,4'-isopropylidenebis-2-isopropylphenol (K6606), 4,4'-ethylamylidenediphenol (K6605), and 4,4'-isopropylidenedi-o-cresol (K1409), have been shown to offer significant protection against severe infections with *Eimeria tenella*.

Although these products do not have the disadvantages of high cost, as in sulfaguanidine and sulfaquinoxaline, nor of the toxicity of sulfur, they still are effective only if drug feeding is begun before coccidiosis has become established in a flock. All of the products favorably reported up to this time are giving favorable results if they are fed before infection or simultaneously with it, not under the usual farm conditions where coccidiosis is recognized only after it has become widespread in the flock.—[P. A. Hawkins and J. S. Dunlap: *Bisphenols for the Control of Cecal Coccidiosis. Poultry Sci.*, 28, (1949): 818-830.]

Insecticide Toxicity

Chlordan and toxaphene may produce grave symptoms, or even death, in warm-blooded animals. Pathologic changes may be found in the gastrointestinal tract, liver, kidneys, adrenals, heart, lungs, lymph nodes of the affected organs, brain, and spinal cord.

The immediate cause of death, in goats, was retarded oxygenation of the blood due to pulmonary edema, emphysema, and atelectasis.

Toxaphene produces lesions more rapidly than chlordan, but both chemicals affect most of the vital organs of the body with pulmonary lesions being the most severe.—[B. Choudhury and V. B. Robinson: *Clinical and Pathologic Effects Produced in Goats by the Ingestion of Toxic Amounts of Chlordan and Toxaphene. Am. J. Vet. Res.*, 11, (Jan., 1950): 50-57.]

Aureomycin in Leptospirosis

Aureomycin (0.1 µg/cc. of medium) inhibited growth of *Leptospira canicola* and *Leptospira icterohaemorrhagiae*. When 50 young hamsters were experimentally inoculated with *Leptospira*, 45 survived after treatment with penicillin. Of these, 20 continued to be renal carriers.

Of the *Leptospira* carriers, 15 were treated with aureomycin for three days and 10 were treated for five days. The kidneys proved to be sterile, and the carrier stage was terminated in these animals.

Results on a limited number of animals indicate that 40 mg. of aureomycin per kilogram of body weight given orally also has therapeutic value in leptospirosis.—[K. T. Brunner and K. F. Meyer: *Effect of Aureomycin on Leptospira Canicola and Leptospira Icterohaemorrhagiae in Vitro and Experimental Carrier Studies. Am. J. Vet. Res.*, 11, (Jan., 1950): 89-90.]

Thiamine Analogue in Rat Tissues

Pathologic changes were found in various rat tissues, but these could not be attributed to the O-aminobenzyl analogue of thiamine, when this substance was added to the diet of rats which was otherwise thiamine-free. The etiology of myelin sheath degeneration is not limited to thiamine deficiency, because animals receiving a purified basal diet showed some histopathologic changes even

when growth occurred at an apparently normal rate. The author concludes that some of the histopathologic changes which have been reported in various experimental animals on nutrition trials may be corrected by feeding diets which are more complete in the light of recent advances in nutrition.—[*M. J. Swenson: The Effect of a Thiamine Analogue on the Histopathology of Rat Tissues. Am. J. Vet. Res.*, 11, (Jan., 1950): 105-114.]

BOOKS AND REPORTS

Accredited Higher Institutions

This book lists the universities, colleges, junior colleges, teachers colleges, and normal schools accredited by national and regional associations, and the state universities and state departments of education.—[*Accredited Higher Institutions*, 1948. Bulletin No. 6. Prepared by Theresa Birch Wilkins for the Federal Security Agency. Paper, 120 pages. United States Government Printing Office, Washington 25, D.C. 1949. Price 30 cents.]

Methods in Medical Research

An appraisal and discussion of methods and techniques used in solving the problems of medical research, this volume is divided into three self-contained sections, each covering a broad field of investigation, namely: Methods of Study of Bacterial Viruses, Pulmonary Function Tests, and Assay of Hormone Secretions.

The bacterial viruses are known to many veterinarians under the name of the bacteriophage principle of d'Herelle. The methods of isolating the viruses, the equipment used, and a list of 71 references on the numerous phases of the problem constitute section one of the book.

The section on pulmonary function tests deals with the apparatus used in making basic measurements and specific tests. All deal more or less directly with the primary pulmonary function of providing an exchange of oxygen and carbon dioxide between the atmosphere and the blood.

The assay of hormone secretions, including pregnancy diagnosis tests, comprises the third section. Assay of the estrogens, androgens, and ketosteroids by chemical and biologic methods is a highly technical procedure, as here described.

In general, sections one and three provide a storehouse of information which can and should be used by animal physiologists to gear them to the tempo of need by practicing veterinarians. The equipment described is so intricate and expensive, and the procedure so exacting, that practitioners in medicine and veterinary medicine would find it difficult to apply them to everyday practice. The underlying principles portrayed must be converted into practical applications before they can be used outside the research laboratory.—[*Methods in Medical Research*, Vol. II. J. H. Comroe, Jr., Editor in Chief, Philadelphia, Pa.; I. H. Page, A. C. Ivy, C. M. MacLeod, E. A. Stead, and D. L. Thomson.

Cloth, 361 pages. Yearbook Publishers, Inc. 200 East Illinois St., Chicago. 1950. Price \$6.50.]

Planning Your Animal Hospital

This is a book which will certainly be useful to any veterinarian who is planning to build, buy, rent, or remodel a hospital for small animals. The eight chapters of the book deal with: (1) Choosing a Location; (2) The Preliminary Planning; (3) The Floor Plan; (4) Hospitals Illustrated; (5) Architecture, Materials and Construction; (6) Finishing and Furnishing; (7) The Architect, Contractor and Financing; and (8) Developing a Successful Practice.

Each chapter is concise, with essential information tabulated or outlined, and the book is profusely illustrated. Quite naturally, the longer chapters are those on architecture, materials and construction, and on finishing and furnishing. Because of the diversity of functions which the several rooms must serve, a wide range of materials must be used if each room is to provide optimum facilities.

The book will undoubtedly leave some questions to be answered by each individual veterinarian working with his architect, but it certainly provides the answers to a vast number of questions—answers which have previously been obtainable only as a result of diligent individual inspection and correspondence.

It is a book long needed, which every veterinarian will want to study in order to help arrange available facilities in such a way that a maximum of service may be rendered with a minimum of effort.—[*Planning Your Animal Hospital*. Edited by W. H. Riser for the Committee on Hospital Building and Equipment of the American Animal Hospital Association. Cloth, 155 pages. 121 figures. American Animal Hospital Association, 5335 Touhy Ave., Skokie, Ill. 1950. Price \$3.50.]

Pigs

This is a comprehensive story of *Sus scrofa* from the feral animals of the earliest days of recorded history to the highly specialized producers of bacon, ham, and lard as we know them today. The authors trace the record from the early days when pigs were associated with such gods of mythology as Adonis, Attis, Osiris, and Demeter, when the flesh of the pig was eaten only in secret and as a religious rite. In that record, there are periods of veneration and periods of vilification, eras in which the flesh was alternately worshipped and tabooed.

Although the origin of the pig, and the record of its first domestication are lost in antiquity, the history in America is traced from the time they were landed in Florida by De Soto on May 25, 1539. The eventual concentration in the Mississippi Valley, and especially in the Corn Belt, was a logical development, since corn turns out more units of meat, pound for pound, than any other foodstuff, and since pigs are able to utilize this feed at a rate which produces a 6,000 per cent increase in weight in six months. The extent to

which this combination of corn and hogs has resulted in mutual development is attested by the fact that the people of the United States consume more than 15 billion pounds of pork and lard annually—and the industry which makes this possible shows a profit of \$3 billion to farmers, packers, and retailers not to mention all of the positions it creates indirectly and directly.

Although it presents a great amount of factual material, the book is written with such humor that it is pleasant reading. Veterinarians should read the book because it will help them to understand these animals which are their daily patients and give them a greater appreciation of the important place which this service occupies in supplying a vital food item in the human diet.—[*Pigs, From Cave to Corn Belt*. By C. W. Towne and E. N. Wentworth. Cloth. 303 pages. Illustrated. University of Oklahoma Press, Norman. 1950. Price \$4.00.]

The New Journal of the Armed Forces

Unification of the armed forces has brought about the consolidation of two well-known military medical journals: *Bulletin of the U.S. Army Medical Department*, published since 1922, and *U.S. Naval Medical Bulletin*, published since 1907. In their place comes the new monthly *United States Armed Forces Medical Journal* as official organ of the medical departments of the Army, Air Force, and Navy. The January, 1950, issue was No. 1, vol. 1. Reports of Army and Air Force Veterinary Corps developments will be included in this publication.

Research in Medical Science

This book is a collection of 26 essays, each by an outstanding author on one phase of a particular subject. The essays vary in length from 6 pages to more than 30 pages. The authors do not necessarily hold medical degrees, in fact a number of the medical colleges have established a calculated policy of infiltrating the staff clinicians with representatives of the fundamental sciences. This policy has already proved capable of inducing significant developments in medical research—not only by fundamental scientists in the clinical field, but also by the clinician in the field of fundamental science.

The list of authors comprises biochemists, immunochemists, virologists, bacteriologists, synthetic organic chemists, physical chemists, physicists, engineers, entomologists, geneticists, parasitologists, pharmacologists, and clinicians. These men have investigated the nature and therapy of the disease process, and the essays cover the most significant developments and achievements in the respective fields. They also point the way for future progress by helping to clarify the thinking on what constitutes medical research.

The book contains a vast store of technical information, much of it presented in technical language, and comparatively little of a nature which will interest, or be immediately useful to, the prac-

titioner of veterinary medicine. For the research worker and faculty member, it offers useful facts, and for the prospective book publisher, it suggests a way to get many phases of a problem adequately covered in a reasonable time. Undoubtedly, several textbooks sorely needed in veterinary medicine could be written on this general plan.—[*Research in Medical Science*. Edited by D. E. Green and W. E. Knox. 492 pages. Cloth. The Macmillan Company, 60 5th Ave., New York 11, N. Y. 1950. Price \$6.50.]

The Application of Chemistry

Chemistry and its closely related science, physics, are known to have made rapid progress during recent years. The scope of this book and discussion of the new developments associated with radioactivity further testifies to this fact. The preface to the first edition states that "it is intended for use in connection with a brief course in chemistry for the purpose of helping to make more meaningful applied sciences and arts, such as physiology, cookery and nutrition, bacteriology, materia medica, and nursing practice." Beginning with the fundamentals of chemistry, it nurtures these basic facts through the book to the point of their practical application. The discussion of radioactive elements and isotopes has been expanded from earlier editions, and it is these sections that show a marked contrast with older books. All other chapters have been revised, in the third edition, with the purpose of attaining a better understanding of physiology, microbiology, and nutrition.

The pages of this book contain a vast amount of information. The material is clearly presented by use of examples, illustrations, equations, and tables. Since it covers such a broad field, it is hard to predict what the reaction of most readers will be. Those who have had little previous exposure to chemistry may find that it moves along too fast. Readers who have studied chemistry extensively will find parts of the book elementary. However, chemists who are specialists in certain fields will find many of the other facets of the broad science well discussed. There is no doubt that the book accomplishes what the title suggests—presenting the fundamentals and giving them practical application.—[*Fundamentals of Chemistry and Applications*. By Charlotte A. Francis, A.M., and Edna C. Morse, R.N., A.M., Ed.D. 3rd ed. Cloth. 545 pages. Illustrated. The Macmillan Company, 60 5th Ave., N. Y. Price \$4.50.]

The Dachshund

The dean of breeders and judges of this breed traces the origin and development of the Dachshund in the various countries through which it has progressed, and down to the present era in America where its popularity has risen to great heights.

The official Dachshund standard and the more common general faults in type are considered in detail, as they apply to the several varieties within the breed.

Primary interest for the veterinarian lies in the background of information which many clients possess and which can help the veterinarian to render an adequate service.—[*The Dachshund*. By Grayce Greenburg. 4th ed. Cloth. 160 pages. Illustrated. Judy Publishing Co., 3323 Michigan Ave., Chicago 16, Ill. 1950. Price \$3.00.]

Wildlife Review

Among the periodicals veterinarians should read habitually is *Wildlife Review* issued monthly by the U.S. Fish and Wildlife Service, USDI. The issues contain 60 or more side-stitched pages of offset printing presenting the subject in the form of abstracts from many sources. Every issue reveals a lot of not-generally-known facts about wildlife.

The Boxer

Divided into 10 sections and 47 chapters, the book traces the origin, history, and development of this popular breed. The information covers not only that which is needed by the beginner in selecting and training a puppy, but also that needed by the breeder who would enter dogs in shows and exhibitions, and raise pedigreed dogs for sale.

Although the name is English, the ancestry of the breed is French and the development is German. The official standard is discussed and explained so that the reader may have the basic facts on which show ring placement is made.

For the veterinarian, two items are particularly interesting. Under ear trimming, the author stresses the need for anesthesia and says: "Only an expert can properly trim ears. This means that they should be done by a veterinarian who is constantly doing ear trims. It does not mean a backyard job by you and your neighbor." The chapter on diseases is in very general terms, and is based on the premise that those who know "most about the physical needs of the dog are the first to patronize the veterinarian," and that, in fairness to the dog, one should "bring your ailing dog in good time to the veterinarian" instead of waiting until "even the best professional skill cannot save him."

A book which will help every veterinarian who treats dogs to understand the problems of the owners and breeders of dogs, and to appreciate the difference between an outstanding pedigreed dog and a mongrel.—[*The Boxer*. By Dan M. Gordon, M.D. 3rd ed. Cloth. 160 pages. Well illustrated. Judy Publishing Co., 3323 Michigan Ave., Chicago 16, Ill. 1950. Price \$4.00.]

Toxicology for Veterinarians

The last previous edition of this book was issued twenty-two years ago, and the current issue has been enlarged with the inclusion of new poisons and new combinations as well as new uses of the older poisons. At the same time, it has been condensed by the removal of some of the old chapters. It has been rearranged throughout, with the inorganic toxins listed according to the periodicity

of the metals; the organic poisons are in a chapter or section of the book by themselves; and the poisonous plants and plant poisons arranged according to pharmacologic classification.

The introduction deals with the general toxicologic problem; Part I, the inorganic compounds; Part II, the organic compounds; Part III, the poisonous plants and plant poisons; Part IV, the poisonous animals and animal poisons. The index is extensive and complete, as well as easy to use.

The book lists in detail the various types of toxicologic substances and treats each one of them in considerable detail.—[*Lehrbuch der Toxikologie für Tierärzte*. By Dr. Richard Volker. 6th ed. Cloth. 404 pages. Ferdinand Enke Verlag, Stuttgart, Germany. 1950. Price 33 marks.]

Michigan State College School of Veterinary Medicine

The report for 1949 of the School of Veterinary Medicine, Michigan State College, East Lansing, suggests that "all veterinary students should supplement their animal knowledge by work with farm animals during the summers in the early part of the veterinary program."

The size of the freshman class admitted was reduced from 96 during the preceding year to 64 because of the lack of proper facilities to train a large number of students in each class.

The prime purpose of teaching medical technology is the training of young women to do laboratory work in the bacteriology, pathology, and chemistry necessary in the diagnosis and treatment of disease in man and animals. The course prepares women for positions in hospitals, commercial and research laboratories, physicians' and surgeons' clinics, and federal, state, and municipal health laboratories.

A total of 108 students were enrolled in graduate programs leading to the degrees of master of science or doctor of philosophy.

The extension specialists in animal pathology report that diseases such as hog cholera and equine encephalomyelitis did not cause undue concern during the year. Rabies, however, was given more than the usual amount of attention.

Brucellosis was the subject of an extensive educational program which resulted in requests by all of the county boards of supervisors to the Michigan Department of Agriculture for county brucellosis test programs.

A total of 35 counties is now classed as modified accredited areas. The brucellosis-eradication program is being assisted by widespread use of the new brucella M vaccine. Its use is being restricted to licensed veterinarians approved by the Michigan Department of Agriculture who, during the last year, used about twice as many doses of the M vaccine as they did of strain 19. The majority of the reports on the use of the new vaccine are favorable, but concrete data are not numerous.

The brucellosis campaign should proceed at a

fairly rapid rate, because the entire state has approved the plan of control. Funds provided for the work will have an important bearing. The shortage of veterinarians appears to have been overcome by the employment of practitioners in the official work.

The report lists in detail the enrollment for the school year 1948-1949, the activities of the several departments of the School of Veterinary Medicine, and of the laboratories which are connected with it. It also lists the publications issued by staff members and brief reports of research projects which are being carried out in cooperation with the agricultural experiment station.—[*Report of the School of Veterinary Medicine, Michigan State College, East Lansing, 1949. Presented by Dean C. S. Bryan. Paper. 68 pages.*]

Abnormal Milk from Uninfected Quarters

The production of abnormal or poor quality milk is not always a characteristic of diseased udders, and milk which falls below the usual standards for normality is frequently secreted by quarters free from infection and from clinical mastitis.

An experimental herd of 20 heifers was established to determine to what extent abnormal milk is secreted by quarters with no pathogenic bacteria, and to ascertain what factors are responsible for the abnormalities observed.

It was concluded that secretion of milk of abnormal chemical composition can not be considered proof that disease of the udder is present. Indirect tests, that is, tests of the milk itself, are therefore unreliable.

Advancing age is an important factor in the gradual deterioration of the mammary gland and in the quality of milk secreted by it. This deterioration with advancing age during successive lactations probably may be ascribed to physiologic factors and notably to hormonal control of the functional activity of the udder.

When there is a decline in the quality of the milk secreted by animals in good health and well nourished, the search for the primary cause of the decline must be directed to the udder itself. Although the nature and extent of seasonal variations in milk solids are not clearly defined, it is probable that such variations do exist.

Reports of earlier workers, notably the European and American, to the effect that high environmental temperatures are responsible for a depression in milk solids could not be verified by the South African workers.

In a general way, it was evident that the effect of stage of lactation on the composition of milk may be greatly influenced by complicating factors like season, individuality, age, disease of the udder, and pregnancy.

Of these, season and period of lactation appeared to be most influential. The composition of milk in the final stages of lactation is very similar to that secreted in the first week after parturition.

It was not possible to establish a connection be-

tween bad conformation and structure of the udder and the depression in quality of milk secreted.

Five quarters of 2 cows were studied in detail when they developed nonspecific mastitis characterized by clinical symptoms of inflammation and changes in the composition of the milk, but absence of known pathogens. In only one of the five quarters was recovery apparently complete.

The factors studied in this series of observations were solids not fat, fat, chloride, lactose, chloride-lactose index, and cell content. Every one of the 40 quarters studied, at some time or other, secreted milk which was of abnormal composition and all 12 quarters of 3 cows yielded milk which was abnormal in the majority of the tests.

The general conclusion, as a result of all the observations, was that poor quality milk was not necessarily characterized by high bacterial, or high cell, count.—[S. W. J. Van Rensburg: *The Secretion of Abnormal Milk by Quarters Free from Known Pathogens. Onderstepoort J. Vet. Sci. and Anim. Indust.*, 22, (1947): 91-226.]

Ducks and Geese

A new magazine which will be titled "Ducks and Geese" and which will present items of interest to waterfowl breeders and research workers will soon make its appearance. It will be edited and published by Mr. and Mrs. J. L. Peyton, Route 2, Box 741, Duluth 2, Minn., and they invite interested persons to submit items of news, articles on duck and goose raising, recipes, photographs and plans, and any other information which will be of interest.

Collected Swedish Papers

This is a compilation of 15 papers published during 1948 by members of the staff of the State Veterinary Medical Institute, Stockholm, Sweden. Among the subjects discussed are: the influence of shipping methods on bacteriologic inspection of lymph nodes, immunization against *Trypanosoma equiperdum*, serologic classification of the streptococci of mastitis, contagious pyoderma in swine, acetoneemia in cattle, internal parasites of sheep and cattle, fowlpest, hepatitis contagiosa canis, a protein-differentiation test, bacteriologic diagnosis by fermentation, equine virus abortion, histopathology of acute laminitis, white muscle disease in lambs, utilization of vitamin A and carotene by identical twin heifers, and the antigenic structure of *Bacterium coli* from calves.

Some papers are in Swedish, some in German, and some in English. Each paper has a summary in English.—[*Collected Papers from the State Veterinary Medical Institute, Stockholm, Sweden. Bound together in a heavy manila cover. 1948.*]

Don't Call a Man a Dog

Nobody but a cynophile could have written a book like this, and only lovers of dogs will fully appreciate it. Its covers bind an entertaining collection of memos, memoirs, eulogistic prose, and a little poetry—appealingly illustrated and

all dedicated to the gospel that it's a dirty trick (on dogs) to put a dog on the same commonplace level with *Homo sapiens*.

Skipping happily from thought to thought on ownership and care, the author points out that the American people are spending about \$229 million yearly in behalf of their dogs. That may sound like a lot of money, but the tributes paid the dog on these pages, including a reprint of Senator Vest's tribute, are convincing evidence that the expenditures are small in terms of the happiness it brings the spenders.

A helpful list of do's and don'ts for owners and facts about the dog's mental and sensual makeup add to the educational value of the book.—[*Don't Call a Man a Dog*. By Will Judy. Cloth. 160 pages. Illustrated. Judy Publishing Company, Chicago 16, Ill. Price \$2.50.]

Pollen Slide Studies

This is a time-saving digest of information on pollens and pollen slide counts. The text and the illustrations (182 drawings and 34 photomicrographs) present the information necessary to make reliable pollen counts, making this a reference book for allergists, technicians, and others interested in this field. Even the busy physician would find it valuable, but the application to the practice of veterinary medicine is somewhat remote. A greater development of the knowledge of animal allergies is needed and, for veterinarians working in this field, the book provides an abundance of information in a form that can be readily used.—[*Pollen Slide Studies*. By G. T. Brown, M.D., F. A. C. P. Cloth. 122 pages. C. C. Thomas, 301-327 E. Lawrence Ave., Springfield, Ill. 1949. Price \$6.00]

Veterinary Calendar for 1950

A series of notebooks, by months, and with a separate page for each day of the month, on which the practicing veterinarian reports the premises on which he has, on that day, diagnosed or treated infectious disease. There is room also to list the duties performed for the veterinary police and the sanitary police. These reports supplement the statistical division which estimates animal populations, food supplies, and other data.

The covering booklet carries a concise description of many of the reportable conditions, symptoms to assist in a prompt and accurate differential diagnosis, and a listing of the common therapeutic agents available and of meat-inspection regulations. There is a table showing the organization of the regulatory bodies to which the veterinary personnel of Germany are responsible.

"The first commandment of ethical veterinary practice and surgery is the humane treatment of suffering animals, which includes the use of anesthesia and the latest aids to painless surgery. Furthermore, such anesthesia protects the operator and provides adequate restraint to permit the highest quality of surgery." These are the opening statements in the chapter on anesthesia.—

[*Veterinar—Kalender 1950*. Edited by Dr. Glasser. (In German.) Cloth. 306 pages. 4¼ x 6 inches. M. & H. Schaper, Hannover, Germany. 1950. Price 7 marks.]

Provincial Veterinary College of Quebec

The report for 1948-1949 of the *Ecole de Médecine Vétérinaire de la Province de Québec*, now located on its own estate at Saint-Hyacinthe, documents the school's activities in respect to the number of animals treated and their ailments, surgical operations performed, scientific tests made, autopsies held, and other details about the 609 hours devoted to clinical teaching. A significant part of the report is the number of large animals (2,579) compared with the small number of dogs and cats (201) listed as clinical material. A unique feature of the session was the visit of the student body to the Ontario Veterinary College and Michigan State College which, the reporter says, had the immediate effect of improving the equipment of the school's diagnostic laboratory.

The report is addressed to the director of the school, Dr. Gustave Labelle, and is signed by the respective chiefs of the large and small animal clinic, Dr. Martin Trépanier and Gérard Lemire and their assistants.—[*Report of the Ecole de Médecine Vétérinaire de la Province de Québec, 1948-1949*. By Dr. Martin Trépanier and Gérard Lemire. *Ecole de Médecine Vétérinaire de la Province de Québec, Saint-Hyacinthe, Que. 1949.*]

Histology of Domestic Animals

This book presents a definition and a description of the structure and function of the parenchymal and the supporting cells of every tissue and organ of the body. The systematic arrangement of histology and comparative microscopic anatomy makes the material easy to follow and to assimilate.

In accuracy and meticulous depiction of microscopic detail, it rivals some of the German scientific works of pre-Hitler days, with the advantage of such advances as have been made in the microscopic and printing methods since that time. The material has been completely revised and modernized.—[*Histologie und vergleichende mikroskopische Anatomie der Haustiere*. By A. Trautmann and Joseph Fiebiger. Cloth. 400 pages. 9th ed. 463 illustrations, including some in color. Paul Parey, Berlin SW. 68, Friedrichstrasse 227. 1949. Price 46 marks.]

Laparotomies in Cattle

The techniques of the various operations requiring invasion of the abdominal cavity are described with graphic pictures of the main steps. Laparotomy for the removal of foreign bodies, bloat, intestinal invagination, pelvic hernias, spaying, and dystocia are among those discussed.—[*Les Laparotomies Chez les Bovins*. By A. Vicard. 58 pages. Profusely illustrated. Vigot Frères, Paris, France. 1950.]

Bacteriology

The fourth revised edition of Calmette's work on bacteriology is largely confined to the techniques of the Pasteur Institute; in short, it is the work of the bacteriologist brought up to date.—[*Manuel Technique de Microbiologie et de Sérologie*. By Prof. A. Calmette and coworkers. 727 pages. Masson et Cie, Paris, France. 1948. Price 1,900 francs.]

Instructions for Projectionists

Techniques, elementary mechanics, fine points, and pitfalls of film showing are depicted in this handbook for beginning projectionists. Reading material is kept down to a minimum, the major emphasis being on graphic instruction through diagrams and sketches. Typical models of well-known slide, filmstrip, opaque, and sound movie projectors are shown, along with instructions on handling and maintenance. The veterinarian who is looking for basic facts on the operation of audio-visual equipment will find in this manual just about everything he wants to know.—[*The Audio-Visual Projectionist's Handbook*. Reprinted from original sources by Ideal Pictures Corporation, 28 E. 8th St., Chicago, Ill. Price \$1.00.]

Trees of the United States

Each year, wartime excepted, the U. S. Department of Agriculture publishes a yearbook on some important phase of the nation's agricultural economy, and it spares no effort to make the story complete. Its contribution for 1949, entitled "Trees," ranks with the best of other volumes in this series and is impressive in scope and quality of content. If there is any ground for criticism, it must be left to the students of arboriculture, silviculture, lumbering, woodworking, et al. To others, veterinarians included, reading it is bound to inspire new respect for the country's wooded resources and for the men who are laboring to maintain them.—[*Trees: The Yearbook of Agriculture*, 1949. Edited by Alfred Stefferud, U. S. Dept. of Agriculture. Cloth. 944 pages. Illustrated. U. S. Government Printing Office, Washington, D. C. 1949.]

World Dog Map

A map of the world on heavy offset paper, 17 by 21 in., presents 117 pure breeds of dogs throughout the world.

The material presented is educational, instructive, and has permanent value. It should serve schools, clubs, libraries, and kennels in finding the unusual as well as the usual in dogs.—[*Judy Publishing Co.*, 3323 Michigan Blvd., Chicago 16. 1949. Price \$1.00.]

All-Pets Magazine

This is a consolidation of 11 magazines in the pet field. It has sections for canaries, foreign

cage birds, toy and other dogs, cats, home aquariums, bantam chickens, ornamental fowl, pigeons, hamsters, caviars, rabbits, and the pet shop. Listed among the editors and associate editors are specialists in these several fields.

It is published monthly at \$2.00 a year and subscriptions may be obtained from Frank E. Ditrach, Fond du Lac, Wis.

Received But Not Reviewed

Directory and Report, Board of Examiners in Veterinary Medicine, 1949. Department of Professional and Vocational Standards, Sacramento, Calif. 44 pp.

Annual Report, 1949. Sharp and Dohme, Inc., Public Relations Dept., 640 N. Broad St., Philadelphia, Pa. 15 pp.

Catalogue of Antituberculosis, Charity and Propaganda Seals and Stamps of the Republic of Cuba. National Council of Tuberculosis, Havana, Cuba. 8 pp.

Bulletin of the National Society for Medical Research. Annual Report Issue. National Society for Medical Research, 25 E. Washington, Chicago, Ill. 13 pp.

The Borden Awards, 1949. The Borden Company Foundation, Inc., 350 Madison Ave., New York 17, N. Y. 4 pp.

REVIEWS OF VETERINARY MEDICAL FILMS

Producers of motion pictures considered to be directly or indirectly related to veterinary medicine are invited to submit pictures to the AVMA Motion Picture Library for review. Reviews of pictures considered by the reviewers to be of interest to veterinarians, and students in colleges of veterinary medicine, or suitable for use by veterinarians for showing to lay audiences, will be published in the JOURNAL. Reviews will give credit to the producer and director and will specify under what circumstances and from whom the film is available.—The Editors.

The Physiology of Normal Menstruation.—Sound, 16 mm., color; running time about twenty-two minutes. (Also available silent, running time 30 minutes.) Prepared by Somers Sturgis, M.D., cooperating with Schering's medical service department and clinical research division. The film is available from the Schering Corporation, Bloomfield, N.J., with or without a short commercial trailer presenting the chemistry and pharmacy of estrogen therapy, which mentions the products offered.

Using diagrams and animation, rather than case photography, the exact colored drawings show the complex endocrine functions which are responsible for the phenomenon of menstruation. Each of the endocrine factors involved is assigned a color, the

ebb and flow of the factor during each day of the cycle being followed by this means.

Beginning with the changes which occur in the uterine mucosa during the cycle, successive depictions show the influence of the numerous factors at every stage, and the narrator integrates each factor with those which have preceded it. In this way, the complete cycle can be reviewed as to basic physiology and the continuous interaction of conflicting forces exerted by the several endocrine factors secreted by the pituitary gland and by the ovary. Emphasis is on the growth and sloughing of the endometrium, but formation and rupture of the follicle are shown, as are the formation and regression of the corpus luteum.

This is a scientific presentation to the medical profession, and understanding of the basic facts of endocrinology is necessary for appreciation of the information presented. Lay groups will not enjoy seeing it, nor profit from such showing. For most effective use by veterinarians, the film should constitute a part of a more extensive discussion of the relationship between the endocrine glands and fertility. The practicing veterinarian can apply some of the information presented by the film, but discussion should follow the film and should be led by one who has reviewed and outlined endocrinology.

Veterinary Service with Army Animals. Part I, Remount Service (F. B. 222).—Sound, 16 mm., black and white; running time about eighteen minutes. Produced by, and procurable from, the United States Army. Requests should be sent to the AVMA Motion Picture Library, 600 S. Michigan Ave., Chicago 5, Ill., so that applications may be submitted on the proper form and to the proper army headquarters.

The opening scenes of this picture show how transportation has developed through the ages and how the Army uses animals; horses for transportation and pack purposes, "war" dogs, snow sled dogs, and carrier pigeons. There is a section devoted to the organization and duties of the Veterinary Corps with army animals, including the work of the Veterinary Corps in China during the last war. The pictures of officers inspecting, buying, mallein-testing, castrating, and vaccinating the Mongolian horses are especially good, as are those showing the operation of a remount depot in Burma during the last war. This film will be of interest to veterinarians and students. There is no highly technical information in it and, except for generally familiarizing viewers with the work of army veterinarians, it will have little educational value. It is, therefore, suitable for showing to lay audiences and will serve to broaden the layman's concept of activities of veterinarians.

Veterinary Service with Army Animals. Part II, Evacuation and Treatment of Animal Casualties (F. B. 223).—Sound, 16 mm., black and

white; running time about twenty-five minutes. Produced by, and procurable from, the United States Army. Requests should be sent to the AVMA Motion Picture Library, 600 S. Michigan Ave., Chicago 5, Ill., so that applications may be submitted on the proper form and to the proper army headquarters.

The use of animals in military operations, and particularly the Italian campaign of the last war, are the opening scenes of this film. The organization of the Veterinary Corps in relation to the various types and zones of military operations is given in some detail. A section depicting the evacuation of animal casualties will lack interest for those not in the Army, Reserve Corps, or ROTC. The portion of the film which deals with the actual treatment and evacuation of animal casualties by lead lines, truck, railroad, ferry, and airplane in Italy and Burma will appeal to all veterinarians. The detailed explanation of military organization will make the film most interesting to those in the military service. Other veterinarians, and students of veterinary medicine, will find the portions showing air transportation of horses and mules profitable from a professional standpoint and, to a lesser degree, the whole film will be of interest because of the depiction of Veterinary Corps activities.

Veterinary Food Inspection Service. Part II, Theater of Operations (F. B. 228).—Sound, 16 mm., black and white; running time about fifteen minutes. Produced by, and procurable from, the United States Army. Requests should be sent to the AVMA Motion Picture Library, 600 S. Michigan Ave., Chicago 5, Ill., so that applications may be submitted on the proper form and to the proper army headquarters.

The importance of food of animal origin and its relation to health serves as an introduction in this film. The necessity for having the food properly inspected so that it will be fit for consumption and disease-free is explained. After the introduction, the film shows the place the Veterinary Corps occupies in the whole picture of supplying food to military personnel during military campaigns, with scenes of inspection in harbors and in other parts of the European theater during the last war. The activities of the Veterinary Corps in India, in connection with slaughtering cattle, raising hogs, and storing and inspecting canned foods, are especially interesting. All veterinarians will find this film interesting and informational. It will also be valuable for showing to laymen, as it depicts a phase of veterinary activity that is not commonly known. Groups of students in colleges of veterinary medicine will also find this film interesting and educational.

Miami Beach is famous for
COOL summer evenings.

THE NEWS

Eighty-Seventh Annual Meeting

Miami Beach—August 21-24, 1950

The plans for this year's AVMA Convention call for the opening session to be followed by section meetings only. There will be no general session to conclude the convention, as in previous years.

Therefore, the officers of the six sections have made a supreme effort to coordinate their programs so that a complete picture of the progress made in veterinary medicine during the past year can be presented concisely and clearly.

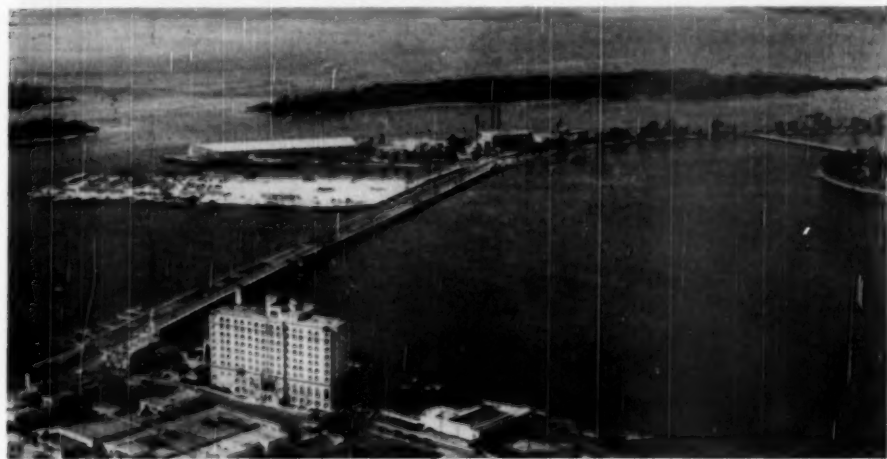
Convention Program Nears Completion

THE SECTION ON GENERAL PRACTICE has developed a program around the problems of large animal management. Beginning with such basic problems as control of parasites in farm animals and a plan for anaplasmosis eradication, the program progresses to the care of the parturient cow, the pathologic conditions affecting the equine foot, and the skin diseases of large animals in the southeastern states. Among the newer developments to be discussed are the use of radiation therapy in large animal practice and the latest information on vitamin B₁₂, APF, and related nutritional factors.

THE SECTION ON RESEARCH will present papers on infertility in cattle, the control of liver flukes,

brucellosis in cattle and swine, some of the newer theories in milk fever and its prevention and control, a method of experimental vaccination against Johne's disease, and a complement-fixation test for fox distemper. Other speakers will present some of the very latest information on a complement-fixation test for foot-and-mouth disease, on the use of aureomycin in poultry infections, and the use of BAL as an antidote for poisoning by arsenic and other heavy metals.

THE SECTION ON PUBLIC HEALTH will be headlined by two panel discussions,—one on rabies, the other on the more general problems of the veterinary public health field. Everyday problems will be analyzed—the operation of a state health de-



—Miami Beach News Bureau

West from Miami Beach, MacArthur causeway winds through beautiful Biscayne Bay to the mainland. At lower left can be seen a part of Miami Beach's famous charter fishing fleet.

partment laboratory, the problems of milk sanitation in so far as they relate to communicable diseases, the tropical diseases of veterinary public health importance, meat inspection with relation to public health, public relations factors which face workers in this field, the importance of creeping eruption and larva migrans, salmonellosis in dogs, and the problems of the U.S. Air Force Veterinary Service.

THE SMALL ANIMALS SECTION will be developed around the idea of having many persons speak for short periods. Four panels are being planned, two of which will be devoted to five-minute discussions of specific routines, prescriptions, aids, operative helps, and "short cuts" which certain veterinarians have developed. Another panel will be devoted to the discussion of distemper and its complications, and the fourth to the heartworm problem in dogs. There will be a paper on the physiologic basis for transfusion of blood and the use of this procedure in establishing and using a blood bank, and one on dog psychology or the management of dogs by hu-

man beings. Routines and procedures will be demonstrated after they are discussed.

THE SECTION ON SURGERY AND OBSTETRICS will highlight its program with several discussions of the problem of infertility and its correction, the diagnosis of pregnancy in cows, and the treatment of pregnancy disease in ewes. Such strictly surgical subjects as the spaying of heifers and other common operations in cattle practice will be discussed. The new antibiotics and drugs will also be reviewed for this section.

THE SECTION ON POULTRY will integrate its program by beginning with a proposed method to be used in teaching the causes of poultry diseases to veterinary medical students. Problems in the operation of a poultry disease laboratory, the recommended procedures for examination of pullorum disease reactors, and the recommended fields of endeavor in poultry disease research will be discussed. Other speakers will show how this information may be applied to everyday practice by



—Miami News Bureau Photo

Miami is a city of commerce and industry as well as a vacation resort. Shown in this photograph is a portion of its busy harbor. In the right background can be seen two of the three causeways connecting Miami with Miami Beach. The one in the foreground is the MacArthur causeway; the other one is the Venetian causeway, which also links a series of beautiful residential islands lying between Miami Beach and Miami.

discussing the public health aspects of poultry diseases, field studies with Newcastle disease vaccine, some of the turkey disease problems, the intestinal parasites of poultry, and the use of isotopes in poultry disease research.

This quick review indicates that the general session, which usually marks the closing meeting of the convention, will be eliminated not at the expense of the number of subjects which will be discussed nor the practical application of the newer findings. Rather, this shortening of the program is accomplished by adhering strictly to a brief and concise presentation of today's problems and a reduction of the historical review which quite often makes up a large portion of the longer papers.

GROUP MEETINGS AND LUNCHEONS

Each year during the AVMA Convention, various organizations and groups meet to discuss specific problems within their particular fields. These meetings are scheduled at times when they do not interfere with the scientific program of the AVMA Convention itself, and they help to bring into closer contact the smaller groups which otherwise would not have an opportunity to discuss in specific detail some of their more pressing problems.

This year, as usual, arrangements are being made for meetings of many of these groups. Reservations are on file for all of those who have met in former years, and any new groups wishing to hold

a meeting and to announce it in the official program may make reservations by communicating with the Chicago office.

Taken as an over-all program, it is apparent that the plans of the Local Committee are being met and that this convention will, in fact, be another highlight in the history of distinguished AVMA conventions.

AVMA Golf Tournament To Be Held in Miami Beach, August 22

Miami Beach convention registrants will really get into the swing of things when the Third AVMA Golf Tournament opens on Tuesday afternoon, August 22.

Recalling the keen interest in the first two tournaments (1941 at Indianapolis and 1942 at Chicago), the committee supervising arrangements for this event predicts a big turnout of golfing veterinarians. The competition will be divided into seven divisions, including divisions for students in schools of veterinary medicine and for technical exhibitors. Winners will receive valuable prizes—and there will be a booby award for the one who goes down swinging with the highest score.

The featured event will be the state team championship in which entrants will participate as two-man teams for the AVMA golf trophy. This division will be open only to members of the AVMA who also are members of their constituent



—Miami News Bureau

An AVMA golf tournament, complete with trophies and other prizes, is on the entertainment schedule for the Miami Beach convention, Aug. 21-24, 1950. Pictured above is a golf course in the Miami-Miami Beach area, one of the many in that area from which the AVMA will select the course for its tournament.

associations. Each constituent association is entitled to enter one or more teams, with the pairing of members of teams being designated before the tee off.

Other divisions of competition will be as follows: AVMA members' individual championship, exhibitors' individual championship, students' individual championship, low-ball gross team championship, and individual high gross score (for booby prize). Present plans also call for a blind bogey to be run in conjunction with the tournament and open to all who want to participate.

Entries will be accepted up to teeing-off time, but veterinarians planning to take part in the state team championship division are urged to make arrangements through the secretaries of their constituent associations without delay. The AVMA office is providing the secretary of each constituent association with entry forms which should be filled out as soon as possible and submitted to Dr. J. R. Simone, chairman, AVMA Golf Tournament, 12685 N.W. 7th Ave., Miami 38, Fla.

Rates for Convention Tours

Members in most parts of North America already have received, or will soon receive, an illustrated folder that gives the itineraries and rates, along with a reservation form, for the official AVMA preconvention tour of Florida and the postconvention trip to Havana, Cuba. These trips, modestly priced, provide an excellent opportunity for veterinarians and their families to visit famous vacationlands in the company of colleagues and friends.

Those who may be making late plans or who have not yet received the tour folder will find details about the Florida and Cuba trips in the April JOURNAL, p. 321, and May, p. 393. Extra copies of the tour folder may be obtained by writing to the AVMA office.

PRECONVENTION TOUR

Rates per person given below for the official preconvention tour—which features a daytime stopover in Washington, D. C. (for members starting from key cities in the Midwest), and an extensive sight-seeing trip (for all tour party members) by air-conditioned Greyhound buses between Jacksonville, Fla., and Miami Beach—include the following paid expenses:

1) Rail transportation from and returning to starting city (with bus transportation, as noted above, between Jacksonville and Miami Beach on the "going" part of the trip only), Pullman accommodations as selected, and all federal transportation taxes in effect May 1, 1950.

2) Sight-seeing as outlined in the April JOURNAL (p. 321).

3) Hotel accommodations for overnight stops while on the sight-seeing part of the tour, but not while in Miami Beach. Members must make their own hotel reservations for the stay at the convention, using the form provided on page 35 of the advertising section in this issue.

4) All meals and baggage-handling expense from point where tour is joined until arrival in Miami Beach (see explanatory footnotes at bottom of rate table), but not while in Miami Beach nor while returning home. An exception is the group traveling from Chicago (see footnote); the rates quoted for this group include all meals and baggage expense for the entire round trip, except while at the convention.

The rates are shown in table 1.

TABLE 1—Rates for Preconvention Tour

Start from and Return to	Upper (\$)	Lower (\$)	2 in Bedrm. (\$)	2 in Comp. (\$)	2 in Dr. Rm. (\$)
Chicago ¹	210.72	218.31	221.95	231.21	246.66
Cincinnati ²	182.59	188.97	191.65	199.96	213.00
Cleveland ³	196.44	203.23	206.02	214.75	228.51
Detroit ⁴	197.81	205.07	208.06	217.31	232.02
New Orleans ⁵	156.47	160.67	162.40	167.66	176.19
New York ⁶	170.45	175.80	177.41	184.17	194.89
Philadel. ⁷	158.27	163.10	165.33	171.66	181.50
St. Louis ⁸	198.97	206.58	209.81	219.67	235.91
Wash., DC ⁹	153.84	158.78	160.85	167.44	176.30

¹Join and leave tour party in Chicago; prices quoted include all meals, baggage, tips, and other listed provisions of the round trip.

²Join tour party on arrival in Washington, D. C.; prices quoted include all listed provisions of the round trip, excepting that meals and baggage tips are provided only while in Washington and en route to Miami Beach.

³Join tour party at time it leaves Washington; prices quoted include all listed provisions of the round trip, excepting that meals and baggage tips are provided only from time of departure from Washington until arrival in Miami Beach.

⁴Join tour party in Jacksonville, Fla.; prices quoted cover all listed provisions of the tour, excepting that meals and baggage tips are provided only from time of departure from Jacksonville until arrival in Miami Beach.

POSTCONVENTION TRIP TO HAVANA

Arrangements for the official postconvention trip to Havana are described in detail in the tour folder now being mailed to members. Those taking this tour will have a choice of going either by plane or by boat, with the following travel schedule and prices prevailing:

By Plane.—Round trip, \$59. This covers all transportation costs and tax, two nights at the Sevilla Biltmore Hotel on the basis of two in a room, planned sight-seeing in Havana and vicinity, and special entertainment provided by Cuban veterinarians. Air group leaves Miami at 8:00 a.m., August 25, and returns to Miami at 7:15 p.m., August 27.

By Boat.—Round trip, \$70.13. This covers all transportation costs and tax, stateroom and meals on boat, one night at the Sevilla Biltmore on the basis of two in a room, planned sight-seeing, and entertainment provided by Cuban veterinarians. Boat leaves Miami at 6:00 p.m., August 25, and returns at 8:30 a.m., August 28.

Airlines Offer Special Summer Rates

Members in the eastern and middle United States who do not plan to take the official pre-

convention tour of Florida, but who intend to fly from their home cities directly to the convention, are advised to inquire at the nearest office of the Eastern Air Lines (eastern cities) or Delta Air Lines (central cities) regarding special summer-rate night flights to Miami-Miami Beach.

Inter-American Congress on Brucellosis

The Third Inter-American Congress on Brucellosis will be held in Washington, D.C., on Nov. 6-10, 1950. The Congress is being sponsored by the Pan American Sanitary Bureau, the Inter-American Committee on Brucellosis, and the Committee on the Public Health Aspects of Brucellosis of the National Research Council. The latter committee on brucellosis of the National Research Council has been designated as the American Committee on Brucellosis and is responsible for the scientific program. Dr. Wesley W. Spink, professor of medicine at the University of Minnesota Medical School, is chairman of this Committee.

AAHA Annual Meeting

The seventeenth annual meeting of the American Animal Hospital Association was held April 24-27, 1950, at the Hotel Shirley Savoy and Brown Palace Hotel in Denver. The scientific program follows.

Dr. Ellis P. Leonard, Department of Therapeutics and Small Animal Diseases, Cornell University, Ithaca: "Canine Obstetrics."

Dr. C. E. DeCamp, Scarsdale, N. Y., was moderator of a symposium on "Hospital Management and Methods." Other members and their subjects are Drs. L. W. Goodman, Manhasset, N. Y., "Building Plans" (with illustrations); J. B. Engle, Summit, N. J., "Receiving and Dismissing Patients"; Thomas W. Craver, Youngstown, Ohio, "Cost Per Day of Hospitalizing Each Patient"; A. R. Trayford, Huntington, N. Y., "Handling the Patients in the Wards"; Lee R. Phillips, Lakewood, Colo., "Hospital Maintenance Costs."

Dr. J. H. Yarborough, Miami, Fla.: "Blood Urea Determination and Its Clinical Uses."

Dr. Robert P. Knowles, Miami, Fla.: "Oxygen and Oxygen Equipment."

Dr. Dwight A. Smith, Department of Veterinary Medicine, Iowa State College, Ames: "The Clinical Applications Intravenously of Procaine Hydrochloride to Produce Surgical Analgesia in the Dog."

Dr. L. Meyer Jones, Department of Physiology and Pharmacology, Division of Veterinary Medicine, Iowa State College, Ames: "The Toxic and Analgesic Effects of Procaine Hydrochloride Administered Intravenously in the Dog."

Dr. Melvin H. Knisely (Ph.D.), Department of Anatomy, Medical College, Charleston, S.

Car.: "The Role of Sludged Blood in Disease" (with illustrations).

Dr. C. P. Zepp, Sr., New York City, president of the AVMA: "Major Surgery on the Old Dog" and "The AVMA and the AAHA."

Dr. R. M. Mulligan (M.D.), Department of Pathology, University of Colorado, School of Medicine, Denver: "Consideration of Canine Neoplasia."

Dr. J. R. M. Innes, U. S. Public Health Service, National Institutes of Health, Bethesda, Md.: "Demyelinating Encephalitis of Dogs."

Dr. Deets Pickett, Kansas City, Mo.: "Curare in Canine Surgery" (with illustrations).

Dr. W. G. Magrane, Mishawaka, Ind.: "Canine Ophthalmology" (with illustrations).

Dr. Gerry B. Schnelle, chief of staff, the Angell Memorial Animal Hospital, Boston, Mass.: "Clinical Interpretation of Laboratory Reports."

Dr. J. S. Feehan (M.D.), resident in surgery, Halsted Experimental Laboratory, University of Colorado, School of Medicine, Denver: "Homografts of Thoracic Aorta" (with illustrations).

Dr. E. E. Sweebe, Abbott Laboratory, North Chicago, Ill.: "Indications for and Use of Fluid Therapy."

The total attendance was about 400, of whom 275 were veterinarians. New officers for the ensuing year are: Drs. J. Raymond Currey, Washington, D.C., president; R. E. Ruggles, Moline, Ill., president-elect; W. H. Riser, Skokie, Ill., executive secretary (re-elected), and A. R. Theobald, Cincinnati, Ohio, treasurer (re-elected).

S/WAYNE H. RISER, *Secretary*.

Summer Fellowship in Zoological Park

A summer fellowship for a graduate veterinarian at the New York Zoological Park (Bronx Zoo) is offered.

The fellowship carries a stipend of \$500 for three months, June 15 through Sept. 15, 1950, and is established to provide an opportunity for veterinary graduates to gain experience and knowledge in the care of captive wild animals and the clinical and pathologic aspects of their diseases. Dr. L. J. Goss, of the New York Zoological Park, reports that the successful applicant will have the opportunity of undertaking a research project of his own as well as participating in projects underway. Only a veterinarian who has graduated from a college approved by the American Veterinary Medical Association will be accepted. Applications should be sent to Dr. L. J. Goss, New York Zoological Society, Zoological Park, Bronx Park, New York 60, N. Y.

Miami Beach is comfortable during the day but you'll need a coat in the evenings.

Proposed Amendments to Constitution and Administrative By-Laws

The following amendments which were proposed at the 1949 annual meeting of the House of Representatives (see Proceedings, Oct. 1949, JOURNAL, pp. 297-298) will come up for final action by the House at the annual meeting in Miami Beach, Aug. 21-24, 1950. They are published again for the information of the membership and, together with the new proposals which follow, will be re-published for three months, so that final action can also be taken on them this year as provided in Section 3, Article XIII, of the Administrative By-Laws.

Amendments Proposed in 1949

AMENDMENT No. 1

To amend Section 1 (a) of Article XI, Administrative By-Laws, relating to Constitutional Sessions, so that it will read as follows:

Section 1.—a) Time: An annual session shall be held in each calendar year, the exact date of which shall be fixed by the Executive Board at least four months prior to the time decided upon. [Purpose.—To remove the present limitations on the time when the annual session may be held; namely, between July 1 and December 31. There may be years when it would be desirable to hold the meeting prior to July 1.]

AMENDMENT No. 2

To amend Section 5(a) of Article X, Administrative By-Laws, relating to junior members, so that it will read as follows:

Section 5.—a) Junior members recommended as having been members in good standing for two years in their respective junior chapters and who are vouched for by two members of the Association may be admitted to membership without the payment of the membership fee of \$5.00, provided the applications are filed within thirty days after the date of their graduation. To retain membership in the Association, members admitted under these provisions from junior chapters, within a period of three years following graduation, must join a constituent association.

[Purpose.—To allow eligible members of junior chapters the privilege of joining the Association immediately following graduation without waiting until they become located and have acquired membership in a constituent association as is now required of regular applicants; also to put them on the same status as other members, within a reasonable time, with respect to being members in good standing of a constituent association.]

New Proposals

NEW PROPOSAL No. 1

To amend Section 3, Article XII, Administrative By-Laws, relating to Councils and Committees, so as to make the present Special Committee on History a standing committee, as recommended in the report of the Committee presented and adopted last year. The following paragraphs would need

to be added to Section 3, Article XII, following part 14:

15. COMMITTEE ON HISTORY

a) Personnel.—This committee shall consist of five members, one of whom is to be appointed each year for a term of five years. The president shall appoint the chairman. The first members shall be appointed for one, two, three, four, and five years, respectively, for terms expiring in the same order.

b) Duties.—It shall be the duty of the first committee appointed to make a survey and, subsequently, to outline the specific scope of the work to be done by this committee, this survey and outline to be submitted to the Executive Board and House of Representatives for approval. Thereafter, the committee shall, each year, execute a portion of the work that has been approved and, from time to time, shall draw up additional plans and recommendations for its work for submission to the Executive Board and House of Representatives.

NEW PROPOSAL No. 2

To amend Section 3, Article XII, Administrative By-Laws, relating to councils and committees, so as to make the present Special Committee on Ethics a standing committee as recommended in the report of the Committee presented and adopted last year. The following paragraphs would need to be added to Article XII following proposed new part 15 (see above):

16. COMMITTEE ON ETHICS

a) Personnel.—This committee shall consist of three members, the majority of whom shall be actively engaged in the practice of veterinary medicine. The term of appointment shall be three years. The president shall appoint the chairman. The committee may select one of its members to serve as secretary. The first members shall be appointed for one, two and three years, respectively, for terms expiring in the same order.

b) Duties.—It shall be the duty of this committee to conduct an educational program among members of the profession regarding ethical standards of conduct; to offer assistance to accredited veterinary colleges in presenting the subject of ethics to their students; and to collaborate with constituent associations through their officers or appropriate committees for the purpose of stimulating an active interest in, and compliance with, the Code of Ethics of this Association. It shall receive and consider all matters pertaining to ethical problems referred to the Association from constituent associations or from members in good standing. Furthermore, it shall consider alleged violations of the Code of Ethics referred to it by local and constituent associations for the purpose of obtaining correction of such violations on a local basis if possible. In case of repeated violation of the Code by a member, which cannot be resolved by the local committee or constituent association, recourse shall be taken by the submission of formal charges against the offending member as provided in the Administrative By-Laws. It shall also be the duty of the committee to

endeavor to correct unethical practices of members of the Association in locations where, in its opinion, the problem is being neglected by the local and constituent associations.

NEW PROPOSAL No. 3

This proposal was formulated by the Research Council at its meeting on Nov. 28, 1949, was submitted to the Executive Board on Nov. 29, 1949, and was approved for consideration and action by the House of Representatives at the 1950 annual meeting.

To amend Section 3, Article XII, Administrative By-Laws, relating to councils and committees, specifically subparagraph (c) of part 12, Research Council, so that it will read as follows (changes are in italics):

c) *Duties.*—The Council shall develop plans and projects, based on the establishment of fellowships with any funds that may be provided, for the purpose of encouraging *graduate and postgraduate study by veterinarians and developing more and better veterinary investigators, teachers, and practitioners.*

The Council shall serve as a coordinating and correlating body in matters pertaining to veterinary research coming under its jurisdiction. Further, the Council shall, with any funds that may be provided for research on specific problems, determine the conditions, indicate the facilities required, and assign the projects.

Note.—The present last paragraph relating to duties is to remain unchanged.

[Purpose.—To clarify the status of the Research Council with respect to carrying on activities beyond the original definition of its work, such as accepting funds for research on specific projects which may not require a full-time fellowship but which may merit the assistance of the Council in seeing that they are properly set up and placed.]

NEW PROPOSAL No. 4

To amend subparagraph (a) of Section 2, Article X, Administrative By-Laws, relating to election to active membership. Amend the third and fourth sentences of the paragraph so that they will read as follows (changes are in italics):

The application from a veterinarian residing where there is a constituent association shall contain the certificate of its secretary that the applicant is a member in good standing of that body. In the case of an application from a veterinarian residing where there is no constituent association, it shall contain the endorsement of two members who know the applicant, one or preferably both of whom shall live in the same country as the applicant.

[Purpose.—As the third sentence now reads, it implies that applications may come only from veterinarians who are already members of constituent associations, which is true; however, the original intent was that a veterinarian, residing where there is a constituent association but not a member of it, and who wishes to apply for AVMA membership, shall first become a member of said constituent association.

As the fourth sentence now reads, it ignores the fact that there are presently constituent associations outside the United States and Canada; namely, in Cuba, Puerto Rico, and the Canal Zone, where prospective applicants may qualify if they belong to said constituent associations.]

NEW PROPOSAL No. 5

To amend Section 2, Article X, Administrative By-Laws relating to active members, in order to clarify reference to graduates of foreign veterinary colleges "approved by the Council on Education." Amend the second clause of the paragraph so that it will read as follows (changes are in italics):

or, of foreign veterinary colleges approved by the Council on Education only for purposes of qualifying their graduates for membership in the Association.

[Purpose.—As the clause now reads, it implies that the Council on Education formally approves foreign veterinary colleges. This is not the case because the jurisdiction of the Council is limited to the United States and Canada with respect to actual accreditation of veterinary colleges. Furthermore, the acceptance of occasional foreign graduates as AVMA members in recent years has been misinterpreted in some instances as tantamount to official accreditation of their schools.]

NEW PROPOSAL No. 6

To carry out the recommendation made by President-Elect Zepp to the House of Representatives at the annual meeting in 1949 relative to the formation of a planning committee to be elected by the House from its membership (*see Proceedings, Oct., 1949, JOURNAL, pp. 333-334*). This requires an amendment of Article XII of the Administrative By-Laws relating to councils and committees so as to add the following paragraphs after proposed new part 16.

17. EXECUTIVE COMMITTEE OF THE HOUSE OF REPRESENTATIVES

a) *Personnel.*—This committee shall consist of seven members elected by the House of Representatives from its own membership. All members shall be actively engaged in the branch of service which they are elected to represent. Two members shall represent large-animal practice, one member shall represent mixed practice (approximately 50% large animal and 50% small animal), one member shall represent small-animal practice, one member shall represent teaching and research, one member shall represent federal or state government regulatory services, and one member shall represent the Armed Forces, U.S. Public Health Service, or its state counterparts.

Chairman.—The committee shall each year elect its own chairman, who, in addition to serving as chairman, shall act in a liaison capacity between the House of Representatives and the Executive Board. The chairman shall attend the annual session of the Executive Board but shall not have the right to vote.

Tenure.—Members shall be elected for terms of three years and shall be eligible for reelec-

tion. However, at the initial election, three members shall be elected for three-year terms (one representative of large-animal practice, one representative of mixed practice, and one representative of the federal or state government regulatory services), two for two-year terms (one representative of small-animal practice and one representative of teaching and research), and two for one-year terms (one representative of large-animal practice and one representative of the Armed Forces or public health work). Thereafter, elections shall be so arranged as to maintain the representation as specified under (a).

b) *Duties*.—It shall be the duty of this committee: (1) to consider all developments relating to veterinary medicine from a long-range viewpoint, to be alert to the changing needs for and demands upon the profession, both private practice and government and institutional work, and make recommendations to the House of Representatives and Executive Board how these changing requirements can best be met for the over-all welfare of the profession; (2) to act in an advisory capacity to the House of Representatives on all matters referred to it; (3) to make a detailed study of reports from association committees and representatives in advance of the annual session, and be prepared to make recommendations to the House on any reports or portions thereof; (4) and, through the Chairman, to act as the voice of the House of Representatives in presenting recommendations from the delegates or members to the Executive Board.

STUDENT CHAPTER ACTIVITIES

Faculty Directory Prepared at Cornell.

Members of the Student Chapter at the New York State Veterinary College compiled a directory of the faculty and staff of the college and distributed these copies at their annual convention in January.

A similar directory was compiled covering the speakers who appeared on the program for the 1950 conference. This item presented to the persons attending the conference a considerable background on the speakers which was not otherwise available and which helped them understand the position many of the speakers took in making their talks.

A third item in this series was a list of the clinical and laboratory demonstrations which had been set up by various departments of the College of Veterinary Medicine and were available for viewing by persons attending the conference.

• • •
Kansas Chapter.—The Kansas State Student Chapter of the AVMA elected the following officers to serve during the spring semester of 1950: Ed Moore, president; Bob Steele, vice-president; Harold Severson, secretary; Dave Herrick, marshal; William Grene, critic; and Ray Swart, president-elect.

Dr. Don Parrish, of the KSC faculty chemistry department, discussed "The Science of Nutrition" at the February 7 meeting. On February 21, Dr. Twiehaus, of the veterinary faculty, spoke on "X-Disease," and showed motion pictures of the condition. Dr. Segars, on March 7, discussed the "History, Nutrition, Parasites, and Diseases of Chinchillas" and expressed the universal need for more extensive research on the subject. His talk was illustrated with 4 live chinchillas. On March 21, President Emeritus Farrel of KSC spoke on "Veterinarians Are People," emphasizing the obligations of the veterinarian to society.

The senior banquet was held on March 25 with the graduating seniors and faculty members as honored guests.

s/M. S. SUTTER, *Publicity Chairman*.

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Prizes to Veterinary Students.—On March 25, 1950, the annual Kansas Veterinary Medical Association award for highest general proficiency was presented to Don F. Lee, Jr. The second award was won by Bernard F. Nowery. James L. Palotay won the AVMA Auxiliary Prize for his excellent work in pathology and photomicrography. Earlier in the school year, William C. Gross had been named winner of the \$300 Borden Award for highest scholarship in the first six semesters of the four-year professional curriculum in veterinary medicine.

Howard H. Furumoto and Harold P. Peffly had the distinction of being listed in the national student's "Who's Who."

AVMA student chapter certificates were also presented at this time. After presentation of awards, students enjoyed a banquet and dancing.

Second semester officers of the student chapter of the AVMA are Edward J. Moore, president; Raymond L. Swart, president-elect; Bobbie A. Steele, vice-president; John W. Gamby, treasurer; Harold C. Severson, secretary; David E. Herrick, marshal; and William B. Grene, critic.

s/HAROLD C. SEVERSON, *Secretary*.

WOMEN'S AUXILIARY

Mrs. Rife to Preside over House.—Mrs. Charles C. Rife, 420 Edgewood Ave., N. E., Atlanta, Ga., as chairman of the House of Representatives of the Women's Auxiliary to the AVMA, will preside over that body when it convenes in Miami Beach during the third week of August. The new constitution, adopted at the general session of the Auxiliary in Detroit, provides that the House of Representatives shall be the legislative body of the Auxiliary and shall act for the full membership on all business except the election of officers. This means the affiliated auxiliaries, through their selected representatives, have the power and the responsibility for directing the activities and determining the policies of our

Auxiliary. It makes our Women's Auxiliary more representative and more democratic than before. It should provide a more thoughtful consideration of problems, a truer reflection of the desires of the membership than has been possible when all business had to be conducted following the annual breakfast. Each affiliated auxiliary is entitled to one delegate and to one vote in the House of Representatives. The delegate, in addition to her legislative duty, reports to the House on the activities of her organization. Mrs. Rife is well qualified to assume the responsibility of leadership in the House of Representatives, for she has been active in her state Auxiliary and she served ably as the first president of the Auxiliary to the Southeastern Veterinary Medical Association.

s/(Mrs. V. H.) FLORENCE MILLER, *President*.

Central Illinois Auxiliary Organized.—Fourteen women met at the Leland Hotel in Springfield on March 16 to organize the Women's Auxiliary to the Central Illinois Veterinary Medical Association. Mrs. C. H. Horstman, Collinsville, acted as chairman at the meeting. The officers are Mrs. C. A. Lemen, president; Mrs. Warren E. Amling, vice-president; Mrs. J. Porter Coble, secretary-treasurer. This is the last group to organize in Illinois.

s/(Mrs. J. PORTER) ALYCE V. COBLE, *Secretary*.

Northern Illinois Auxiliary.—The Women's Auxiliary to the Northern Illinois Veterinary Medical Association held its spring meeting in the Hotel Faust in Rockford on April 12, 1950. Luncheon at Schrom's, a canasta party, cocktail hour, and the banquet were on the entertainment program. Mesdames L. A. Dykstra, Aurora; D. R. Stephenson, Rockford; and H. G. Hoyt, Dundee, were on the reception committee. Officers of this association are Mrs. C. L. Smith, Sycamore, president; Mrs. H. E. Held, Freeport, vice-president; and Mrs. A. A. Legner, Sandwich, secretary-treasurer.

s/(Mrs. A. A. LEGNER, *Secretary*.

Maine Auxiliary.—The Women's Auxiliary to the Maine Veterinary Medical Association met at the Windsor Hotel, Bangor, on Tuesday, April 4, with 18 members and 1 guest attending. The president, Mrs. R. E. Libby of Richmond, presided at the business meeting. She appointed Mrs. A. E. Coombs, of Skowhegan, the Maine delegate to the Auxiliary House of Representatives at the annual AVMA convention in Miami Beach in August. Mrs. S. W. Stiles, of Falmouth Foreside, was asked to arrange the program for the next Auxiliary gathering in July. A feature of the program was a book review by Mrs. A. E. Coombs, who delightfully told the story of the "Peabody Sisters of Salem" by Louise Hall Tharp.

s/(Mrs. STANFORD D.) EVELYN MERRILL, *Secretary*.

Oklahoma Auxiliary.—The Women's Auxiliary to the Oklahoma Veterinary Medical Association

met Jan. 9, 1950, in Oklahoma City. The following officers were elected: Mrs. E. C. Hofmann, president; Mrs. Lewis H. Moe, first vice-president; Mrs. Chas. Kelsie, second vice-president; Mrs. W. D. Bowerman, secretary-treasurer; Mrs. Clarence Love, parliamentarian; Mrs. Chester Williams, historian. A project for the state group was discussed and a committee was appointed to revise the by-laws, in accordance with the new constitution of the Women's Auxiliary to the AVMA.

s/(Mrs. W. D. BOWERMAN, *Secretary*.

Alabama Student Chapter Auxiliary.—The Women's Auxiliary to the Alabama Student Chapter of the AVMA has as its motto, "Not for ourselves alone." There are 63 members, and an effort is being made for a one hundred per cent membership of the wives of veterinary students. The programs have been informative and interesting and, at one of the outstanding meetings, Mrs. C. C. Rife, chairman of the House of Representatives of the Women's Auxiliary to the AVMA, spoke on the life of a veterinarian's wife, her place in regard to her husband's business, and her place in community life. A course in the fundamentals of bookkeeping is soon to be started. The officers are: Mrs. Marianna Maddox, president; Mrs. Jo Stuart, vice-president; Mrs. Ruth Otto, secretary; Mrs. Chris Reynolds, corresponding secretary; Mrs. Idonia Dantzer, treasurer; Mrs. Dean S. Folse and Mrs. Jimmy Greene, sponsors.

s/(Mrs. TOM S.) MARIANNA MADDOX, *President*.

Colorado Student Chapter Auxiliary.—The Women's Auxiliary to the Colorado A. & M. Student Chapter of the AVMA has 110 members out of 130 eligible wives, with an average regular attendance of 100. A monthly meeting is devoted to business and lectures with social activities extra. An informal tea for the new wives and wives of faculty members was given in the fall. Taking the results of questionnaires distributed at our meeting last spring, we set up a program whereby half of our lectures were devoted to subjects strictly related to the field of veterinary medicine. These consisted of talks by members of the faculty and their wives. The other lectures were devoted to subjects in which the members indicated they were interested. One was on entertaining in the home, another on retail cuts of meats and frozen foods, etc. Included in our over-all program was one social function each quarter, the senior party, the tea, a Christmas party arranged by the student wives, and a money-raising card party which added about \$40 to our treasury. Refreshments are served once during a quarter. Each class takes its turn in serving. Also, this year the Auxiliary served "coffee and" for the faculty and visiting practitioners' wives during the "Short Course." The senior wives served punch and cookies at the dedication of Colorado A. & M.'s new veterinary hospital. All

members helped by making cookies or serving. New officers were elected April 3 for the next school year. They are: Mrs. Jesse Davidson, president; Mrs. Guy W. Hicks, vice-president; Mrs. Donald E. Watt, secretary; and Mrs. Robert M. Thackeray, treasurer. A party honoring senior wives is planned for May. Next year, a class in clinical pathology is contemplated, similar to the one the Auxiliary had two years ago.

S/(MRS. CHET R.) MARY LEE GRIFFITH, *President*.

Cornell Student Chapter Auxiliary.—The Women's Auxiliary to the Cornell Student Chapter of the AVMA meets monthly with interesting programs of educational and social value. Mrs. William Hagan told of her trip to Europe and the Fourteenth International Veterinary Congress. Mrs. Jess DeGoosh, a member of the group, talked about Australia, her native land. Faculty wives were entertained at a St. Valentine's party. At that meeting, a demonstration of flower arrangements and corsage making was given by a local florist. In May, the Student Chapter was entertained at a picnic.

The officers are: Mrs. Roni Tomidy, president; Mrs. Jess DeGoosh, vice-president; Mrs. Marjorie Vreeland, secretary; Mrs. Del Chandler, treasurer; Mrs. Mae Wilson, program chairman; Mrs. Eunice Robbins, refreshment chairman.

S/ANNE L. HARRIS.

Iowa Student Chapter Auxiliary.—The Women's Auxiliary to the Iowa State Student Chapter of the AVMA is in its third year of organization and has 102 members. The activities consist of helping the Student Chapter organize the social program, entertaining the Student Chapter, an instructive program, and social affairs for members. Besides worthwhile programs, the Auxiliary has had projects of aid to the needy in Ames and abroad. Dr. Margaret Sloss gave a talk at one of the meetings on "Laboratory Techniques", and it caused so much interest among the members that Dr. Sloss is conducting a weekly class for the wives of senior veterinary students. A class of 35 has been formed to meet for eight weeks, and the studies include the preparation of solutions, using the microscope, blood counts, running fecal tests, making blood films, and filling in brucellosis and tuberculosis charts. The officers are Mrs. Lela Dobson, president; Mrs. Neva Brown, vice-president; Mrs. Virginia Henderson, secretary; Mrs. Helen Perkins, treasurer; and Mrs. H. L. Foust, faculty sponsor.

S/(MRS. A. W.) LELA DOBSON, *President*.

Kansas Student Chapter Auxiliary.—The current school year's activities for the 169-member Women's Auxiliary to the Kansas State Student Chapter of the AVMA began Sept. 24, 1949, with a tea for wives of students of veterinary medicine. In the receiving line were Mrs. Milton S. Eisenhower, wife of the Kansas State College

president; Mrs. E. E. Leasure, wife of the dean of the School of Veterinary Medicine; Mrs. L. M. Roderick and Mrs. A. L. Good, chapter advisors and wives of faculty members of the School of Veterinary Medicine; and chapter officers for the year: Mrs. Mae Weaver, president; Mrs. Mildred Moore, vice-president; Mrs. Carol Evans, secretary; and Mrs. Pat Brown, treasurer.

Throughout the year, meetings including a brief business session, program, refreshments, and a social time were held the first Wednesday night of each month.

Programs included music and readings by college students, a book review, a program on Hawaii by Hawaiian students, and a talk on parliamentary procedure by the parliamentarian of the Student Chapter of the AVMA, and one on, "Animal Diseases Transmissible to Man" by Dr. V. D. Foltz of the bacteriology department staff.

Instead of the regular December meeting, members and their husbands were entertained at a party and dance at the Manhattan Country Club by Dr. and Mrs. E. R. Frank. (Mrs. Frank was a former advisor.)

Smaller interest groups within the organization met several times a month. The Future Practitioners' Wives group, open to all members but designed particularly for wives of upper classmen, heard talks on the life of a professional man's wife by Mrs. Will Menninger, wife of a director of the Menninger Foundation in Topeka; Dr. E. J. Frick, head of the Department of Veterinary Surgery and Medicine and clinic director; Dr. Fayne Oberst of the clinic staff; Mrs. R. W. Hayes, Herington, Kan., president of the Women's Auxiliary to the Kansas State Veterinary Medical Association; Mrs. L. E. Brunscher, wife of a BAI veterinarian stationed in Manhattan; and Mrs. Oberst, wife of a former Iowa practitioner.

Bridge groups met twice a month; beginners' groups met several times for instruction by Mrs. Oberst, and Mrs. H. D. Smiley, wife of a graduate of the School of Veterinary Medicine. The handicrafts group also met for instruction by Mrs. Betty Bogue. The group will exhibit its year's work at the picnic in May.

A social meeting for senior wives was held in April, at which Dean Leasure spoke on telephone responsibilities of the veterinarian's wife, ethics, professional courtesy, and other topics brought up in questions from the audience. Dr. and Mrs. Roland Vetter spoke at a meeting in May. Dr. Vetter, formerly a practitioner in New Jersey, is now on the Kansas State clinic staff.

A tea for senior wives was given in February by the state auxiliary at the home of Mrs. A. R. Borgmann, Manhattan.

The following committees and their chairmen did excellent work throughout the year: the membership committee, Helen Szatalowicz, chairman; program committee, Katie Newton, chairman; foods committee; publicity committee; remembrance committee; and the constitution commit-

tee. The nominating committee met in March to select candidates for the annual election, which was held this year so that out-going officers can assist and counsel new officers in making plans for the coming year. New officers are Mrs. Carol Evans, president; Mrs. Pat Brown, vice-president; Mrs. Erika Dudley, secretary; Mrs. Maxine Caley, treasurer; and Mrs. Jeanne Warren, parliamentarian. Mrs. A. L. Good was reelected sponsor to serve two more years.

S./MAE K. WEAVER, *President*.

Michigan Student Auxiliary.—Officers of the Auxiliary to the Michigan State Veterinary Chapter of the AVMA are Mrs. Doris M. Lindsay, president; Mrs. Lucy Hughson, vice-president; Mrs. Betty Douglas, secretary; Mrs. Esther Moffitt, treasurer; and Mrs. Virginia Swartz, publicity chairman. This group meets regularly each Wednesday evening.

S./MRS. DORIS M. LINDSAY, *President*.

Texas Student Chapter Auxiliary.—The Women's Auxiliary to the Texas A. & M. Student Chapter of the AVMA was organized in May, 1949, and regular meetings began in October. At the first meeting, Mrs. R. P. Marsteller gave a brief history of the Women's Auxiliary to the AVMA. Mrs. R. C. Dunn reported on the national meeting in Detroit at the second meeting. Mrs. R. R. Childers, president of the Auxiliary to the Veterinary Medical Association of Texas, discussed the state organization and the wife's place as a helper in a veterinarian's practice. Mrs. Lonnie Boerme, receptionist and secretary at the small animal clinic in the veterinary hospital of the College, gave pointers on how wives might help in a hospital. She also discussed bookkeeping methods and public responsibility. Other programs were devoted to an exhibition and discussion on oil painting and a talk "Growing Together as a Family," by a family-life expert with the extension service. The officers are: Mrs. Jean King, president; Mrs. K. Saunders, vice-president; Mrs. Dottie Bourke, secretary; and Mrs. Maxine Goodman, treasurer. In addition to the Student Chapter Auxiliary, each class has a separate auxiliary which meets socially twice a month.

S./MRS. C. D. DOTTIE BOURKE, *Secretary*.

APPLICATIONS

The listing of applicants conforms to the requirements of the administrative by-laws—Article X.

First Listing

BENN, ROBERT K.
505 Leonhardt Bldg., Oklahoma City 2, Okla.
D.V.M., Kansas City Veterinary College, 1914.
Voucher: L. H. Moe.
CONNOR, FRANK E.
Morris, Ill.
D.V.M., Iowa State College, 1940.
Voucher: A. G. Misener.

NELSON, LeROY E.

Bricelyn, Minn.

D.V.M., Iowa State College, 1949.

Voucher: B. S. Pomeroy.

TROUT, MAHLON

303 Marshall St., Salisbury, Md.

D.V.M., U. S. College of Veterinary Surgeons, 1926.

Voucher: J. Walter Hastings.

WILSON, E. W.

Caswell Ave., Derby Line, Vt.

D.V.M., Kansas State College, 1931.

Voucher: W. D. Bolton.

Second Listing

ADAM, GEORGE H., c/o Dr. S. L. Catley, 109 17th Ave., W., Calgary, Alta.

ALEXANDER, SAM A., 320 E. Windsor St., Monroe, N. Car.

ASHTON, WILLARD H., 2035 First Ave., N., Payette, Idaho.

BELMAR, HARRY B., Box 284, Dothan, Ala.

BERDAN, LEONARD N., The Rocks, Schoharie, N. Y.

GLOBUS, ROBERT, 758 Boswell Ave., Norwich, Conn.

GREEN, JOE W., Veterinary Science Dept., Purdue University, West Lafayette, Ind.

MYERS, FRED O., 526 S. 3rd St., Corvallis, Ore.

SAVILLE, JOHN M., Chauvin, Alta.

SEDLACEK, GLEN E., 506 Illinois St., Plainfield, Ill.

THOMPSON, ROY A., 218 Centennial Bldg., Springfield, Ill.

VAN AUSSDAL, C. A., Edinburg, Ill.

VANDEBELT, WILLIAM H., 3207 Chapel Hill Rd., Durham, N. Car.

VICKERS, CECIL P., P.O. Box 1207, Tallahassee, Fla.

1950 Graduate Applicants

First Listing

The following are graduates who have recently received their veterinary degree and who have applied for AVMA membership under the provision granted in the Administrative By-Laws to members in good standing of junior chapters. Applications from this year's senior classes not received in time for listing this month will appear in later issues. An asterisk (*) after the name of a school indicates that all of this year's graduates have made application for membership.

Kansas State College

All of the following applicants, with the exception of those otherwise noted, were vouchered by Drs. Edwin J. Frick and Elden E. Leasure.

AGEE, MILES H., JR., D.V.M.
708 Vattier, Manhattan, Kan.
ATKINSON, JOE W., D.V.M.
509 Pierre, Manhattan, Kan.
BARCLAY, JAMES M., D.V.M.
Brooklyn, Iowa.
BARGER, LESTER J., D.V.M.
R.F.D. 2, Merced, Calif.

- BARRETT, RALPH L., D.V.M.
Holisington, Kan.
- BICKLEY, CHARLES C., D.V.M.
Apt. 3-D, Goodnow Cts., Manhattan, Kan.
Vouchers: E. J. Frick and E. R. Frank.
- BISHOP, RALPH L., D.V.M.
R.F.D. 2, Benton, Kan.
- BOOBAR, ROBERT C., D.V.M.
57-D Hilltop Cts., Manhattan, Kan.
- BRAKE, BEN R., D.V.M.
Blue Rapids, Kan.
- BVRD, SYDNEY R., D.V.M.
T No. 38 Campus Cts., Manhattan, Kan.
- CARLSON, ARTHUR, JR., D.V.M.
1711 Leavenworth, Manhattan, Kan.
- CHAPIN, WAYNE B., D.V.M.
1015 Kearney, Manhattan, Kan.
- CRISPELL, ROBERT M., D.V.M.
Box 653, Parsons, Kan.
- DIETRICH, MELVIN, JR., D.V.M.
R.F.D. 5, Emporia, Kan.
- DOWNING, CHARLES W., D.V.M.
c/o Mrs. Kate Downing, Little River, Kan.
- EBY, CLIFFORD H., D.V.M.
500 Humboldt, Manhattan, Kan.
- ELLIOTT, RICHARD D., D.V.M.
1-B Goodnow Cts., Manhattan, Kan.
- ELLIS, HARLIN D., D.V.M.
4708 Mohawk, Kansas City, Kan.
- FURUMOTO, HOWARD H., D.V.M.
69-C Hilltop Cts., Manhattan, Kan.
- GAMBY, JOHN W., D.V.M.
703 Kearney, Manhattan, Kan.
- GATZ, CALVIN C., D.V.M.
1919 Rockwell, El Monte, Calif.
- GOUGH, WALTER J., D.V.M.
612 Osage St., Manhattan, Kan.
- GROFF, JACK D., D.V.M.
205 Houston, Manhattan, Kan.
- GROFF, RICHARD C., D.V.M.
315 N. 5th, Manhattan, Kan.
- GROSS, WILLIAM C., D.V.M.
913 South Main, Jacksonville, Ill.
- HARRIS, WM. W., D.V.M.
830 Fremont, Manhattan, Kan.
- HENDERSON, HAROLD V., D.V.M.
1021 Fremont St., Manhattan, Kan.
- HOGG, ALEX, D.V.M.
67-D Hilltop Cts., Manhattan, Kan.
- HONSTEAD, HERNODN P., D.V.M.
910 Douthitt St., Topeka, Kan.
- KELLEY, WENDELL O., D.V.M.
1217 Huntoon St., Topeka, Kan.
- KEMLER, ARDEN G., D.V.M.
127 Oak Ave., Bonnier Springs, Kan.
- KIRKEMINDE, WILLIAM P., D.V.M.
Council Grove, Kan.
- LEE, DON F., JR., D.V.M.
Paola, Kan.
- MCCUTCHEON, ROBERT E., D.V.M.
Rt. 1, Geneseo, Kan.
- MCKITTERICK, JAMES A., JR., D.V.M.
Mexico, Mo.
- MARLIN, SIDNEY, D.V.M.
629 Green St., Atchison, Kan.
- MILLER, VICTOR A., D.V.M.
58-A Hilltop Cts., Manhattan, Kan.
- MILLS, DONALD W., D.V.M.
Frankfort, Kan.
- MOWERY, BERNARD F., D.V.M.
219 N. Juliette, Manhattan, Kan.
- MURRY, FRANCIS A., D.V.M.
119 N. 14th St., Manhattan, Kan.
- NACE, CHARLES G., D.V.M.
1307 Poyntz Ave., Manhattan, Kan.
- NEAL, JAMES F., D.V.M.
Winfield, Kan.
- NEWBERRY, HENRY W. C., D.V.M.
Rt. 4, Arkansas City, Kan.
- NEWTON, DEAN I., D.V.M.
830 Fremont, Manhattan, Kan.
- OLIN, JAMES R., D.V.M.
757 N. 32nd St., Kansas City, Kan.
- PALMER, DEARBOLD I. F., D.V.M.
1006 Fremont, Manhattan, Kan.
- PALOTAY, JAMES L., D.V.M.
1018 Kearney, Manhattan, Kan.
- PARADEE, DANIEL, D.V.M.
R.R. 2, Columbus, Kan.
- PARKER, CHARLES F., D.V.M.
1605 Anderson, Manhattan, Kan.
- PARKER, RAYMOND M., D.V.M.
22-A Elliot Cts., Manhattan, Kan.
- PEFFLY, HAROLD P., D.V.M.
Box 1, Kansas State College, Manhattan, Kan.
- REID, CHARLES, D.V.M.
Rt. 3, Elizabeth City, N. Car.
- ROKEY, NED W., D.V.M.
62 D Hilltop Cts., Manhattan, Kan.
- ROLLER, MICHAEL H., D.V.M.
Circleville, Kan.
- SCHOONHOVEN, PAUL A., D.V.M.
1722 Humboldt St., Manhattan, Kan.
- SCHUPBACH, ROBERT D., D.V.M.
No. 51 Campus Cts., Manhattan, Kan.
- SELBY, JOE W., D.V.M.
508 W. 7th St., Ottawa, Kan.
- SKINNER, FREDRICK I., D.V.M.
Apt. 1-A, Goodnow Cts., Manhattan, Kan.
- SNOODGRASS, WILLIAM E., D.V.M.
1509 Poyntz Ave., Manhattan, Kan.
- STILES, FRAN C., JR., D.V.M.
4507 Roanoke Pkwy., Kansas City, Mo.
- SUTTON, FRANK F., D.V.M.
1723 Leavenworth, Manhattan, Kan.
- THOGMARTIN, WILLIAM F., D.V.M.
2 South Judson, Fort Scott, Kan.
- TORKELSON, DONALD E., D.V.M.
1421 Humboldt, Manhattan, Kan.
- VEDROS, ANDREW N., D.V.M.
1411 State Ave., Kansas City, Kan.
- WADSWORTH, JOHN G., D.V.M.
R.R. 3, Coffeyville, Kan.
- WEAVER, ROBERT J., D.V.M.
906 Osage, Manhattan, Kan.
- WHEELER, ANDREW C., D.V.M.
1708 Humboldt St., Manhattan, Kan.

AMONG THE STATES AND PROVINCES

California

Dedication of School of Veterinary Medicine.—Before 500 stockmen and other farmers, the new \$4,500,000 building that is to house the School of Veterinary Medicine was dedicated



Fig. 1—Dr. George H. Hart, Dean of the School of Veterinary Medicine in the University of California College of Agriculture, Davis, addressing those who attended the dedication of the \$4,500,000 plant.

on the Davis campus of the University of California on March 20, 1950.

President Robert G. Sproul of the University presided; Dr. C. B. Hutchison, vice-president of the University and dean of its College of Agriculture, gave the dedicatory address; Dr. George H. Hart, dean of the School, and John C. Watson, member of the State Board of Agriculture, were other speakers.

President Sproul, terming the day one that marked the "fulfillment of a dream," recounted the history of veterinary medicine in the University. A school of veterinary medicine was founded on the San Francisco campus of the University in 1895, but failed because of lack of students. Six years later, a division of veterinary science was inaugurated on the Berkeley campus and aided stockmen, dairymen, and poultry producers with their problems for nearly fifty years. Just before World War II, the demand for a school of veterinary medicine became so insistent that the legislature appropriated \$500,000 to start a building. The war interfered with further progress and when final plans were drawn, they were for a structure that cost three times the million and a half originally contemplated.

The veterinary science division will occupy one wing of the H-shaped building and veterinary arts the other wing. According to Dr. Hart, many years have gone into the planning and "it

is the envy of all other schools of veterinary medicine in the world."

John C. Watson, representing the livestock industry, said that "continued reasearch [in veterinary medicine] is necessary, and training students is imperative to meet the demands of the producers. We are proud of the staff here; when such scientists are congregated in one place and are given such wonderful facilities, the results are bound to be great."

Dr. Hutchison dedicated the building "to the use of the School of Veterinary Medicine and to the service of the people of California who have provided it." The new School will have not only facilities for training men but an agricultural experiment station in the field of veterinary science. Public health problems will be undertaken by the new School, in cooperation with other schools of the university.

The new building provides 171,000 sq. ft. of floor space. It has laboratory and classroom space for 200 students in veterinary science, 150 in bacteriology, and 150 in animal husbandry. For the present, at least, other divisions on the Davis campus will use part of its space.

Students entering the School must have two years of college work, preferably in animal or poultry husbandry, after which they will take four years of veterinary medicine. They will receive a bachelor of science degree when they complete two years of preparatory college and two



Fig. 2—One of the many student laboratories provided in the building.

years in the School; at the end of six years, they will be granted the doctor of veterinary medicine degree. It is planned to graduate 50 students each year, admitted on the basis of scholarship and aptitude.

Colorado

Importation of Dogs.—After April 10, 1950, all dogs imported into the State of Colorado by any method and for any purpose must be accompanied by an official health certificate issued by a veterinarian approved by the state of origin. Such certificate must state that the dog is in good health and free from contagious, infectious, or communi-

cable disease and has been immunized against rabies not less than thirty days or more than twelve months prior to date of entry into Colorado, and that rabies has not existed within a 50-mile radius of the point of origin within the past twelve months.

Connecticut

Fairfield County Association.—Dr. C. L. Blakely, the Angell Memorial Animal Hospital, Boston, Mass., presented a discussion on "Surgical Problems" at the meeting of the Fairfield County Veterinary Medical Association at The Chimney Corners Inn in Stamford on April 12.

S/WILLIAM R. LEGGETT, *Secretary*.

District of Columbia

District Association.—The District of Columbia Veterinary Medical Association held its first quarterly meeting of the year in the Pan American Room of the Mayflower Hotel on Jan. 18, 1950. Dr. P. J. Brandy spoke on the observations made during an investigation of animal reservoirs of disease in Alaska for the U.S. Public Health Service. The talk was illustrated with colored slides.

Officers elected for the ensuing year were Drs. George M. Stewart, president; Chester A. Manthei, first vice-president; Col. George L. Caldwell, second vice-president; and Clarence H. Thompson, Jr., secretary-treasurer.

At the second quarterly meeting on April 12, Dr. M. W. Allam, associate professor of veterinary surgery, University of Pennsylvania, Philadelphia, spoke on "Surgical Evaluation of Foreleg Paralysis" (with illustrations) and showed the motion picture "Perineal Herniorrhaphy."

S/CLARENCE H. THOMPSON, JR., *Secretary*.

Florida

Dr. Jackson Wins Outstanding Jaycee Award.—Dr. Ronald F. Jackson (MSC '40), St. Augustine, received the Distinguished Service Award of the U.S. Junior Chamber of Commerce as the outstanding young man of St. Augustine for 1949.



—From The Record (MSC)
Dr. Ronald F. Jackson (left) is congratulated by State Senator Verle A. Pope on winning the Distinguished Service Award of the U.S. Junior Chamber of Commerce.

Dr. Jackson was elected as city commissioner in 1947 and has served as mayor since December, 1949. He worked for the Michigan Bureau of Animal Industry and practiced in Maryland before he came to Florida in 1944.

S/M. W. EMMEL.

Georgia

Southern Association.—The South Georgia Veterinary Association met at the Ware County Livestock Auction Barn at Waycross on April 2, 1950, with 30 veterinarians in attendance. The informal program was devoted to large animal surgical procedures. Dr. S. G. Frazier, Cairo, demonstrated his portable cattle chute used for dehorning, vaccination, and other surgery he has performed. Dr. H. G. Young, Thomasville, discussed symptoms, diagnosis, and indications for the rumenotomy operation, demonstrated his method, and answered questions from the audience. Dr. B. E. Carlisle, Camilla, showed his technique for dehorning. Methods of anesthesia and bandaging of the operative area were also discussed.

The women enjoyed a tour of the residential section of Waycross, a social hour at the Ware Hotel, and a delicious buffet supper.

The program committee and hosts were Dr. and Mrs. B. C. Youmans and Dr. and Mrs. H. S. Tally.

S/W.M. L. SIFFEL, *Secretary*.

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Vetless Counties.—Of the 159 counties in the state, 74 do not have veterinarians.—*The Georgia Veterinarian*.

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Hogs.—Georgia is one of the important swine-breeding states of the South. Of the 96,300,000 hogs in the United States in 1949, 2,367,000 are credited to Georgia.

Illinois

Chicago Association.—Dr. Robert Storm, of the North Shore Animal Hospital, discussed "Our Surgical Routine" at the April 11 meeting of the Chicago Veterinary Medical Association in the Palmer House, and Dr. Leslie Fisher, Berwyn, showed slides of interesting zoo cases.

S/ROBERT C. GLOVER, *Secretary*.

• • •

Northern Association.—The spring meeting of the Northern Illinois Veterinary Medical Association was held in the Hotel Faust, Rockford, on April 12. The program follows.

Dr. John Carey, West Liberty, Iowa: "Cattle Practice."

Dr. A. W. Krause, Cherokee, Iowa: "Swine Practice."

Dr. C. L. Miller, president, Illinois State Veterinary Medical Association, Oak Park: "Greetings from the State Association."

Dr. R. J. Beamer, Ottumwa, Iowa: "Small Animal Practice" (with illustrations).

Dr. W. M. Coffey, president-elect of the AVMA, LaCenter, Ky.: "General Practice."

Dr. R. C. Klussendorf, assistant executive secretary of the AVMA, Chicago, was moderator of a panel discussion of "Dairy Cattle Practice." Others participating in the panel were Drs. L. M. Cropsey, Crystal Lake; J. T. Foley, Cary; and H. L. Marsh, Whitewater, Wis.

Members enjoyed a banquet at the Faust Hotel after the program.

s/A. A. LEGNER, Secretary.

Dr. Borton Named to University Staff.—Dr. Rebecca K. Borton (MSC '46) has been appointed research instructor at the University of Illinois College of Veterinary Medicine. She will assist Dr. Jesse Sampson, head, Department of Veterinary Physiology and Pharmacology.

After receiving her D.V.M. degree, Dr. Borton was appointed veterinary livestock inspector for the Augusta, Maine, station of the U.S. Bureau of



Dr. Rebecca K. Borton

Animal Industry. Recently, she was awarded the master of science degree in veterinary science at the University of Wisconsin, Madison.

Dr. Borton is a member of the AVMA, Women's Veterinary Medical Association, and the Sigma Delta Epsilon.

Special Meeting of Rockford Area Veterinarians.—On April 27, 1950, veterinarians of the Rockford area met in the Faust Hotel in Rockford to discuss local problems in livestock disease control and public health. Drs. L. R. Davenport, consultant in veterinary medicine, Department of Public Health; N. A. Howlett, U.S. BAI, inspector in charge; and Roy A. Thompson, superintendent, Division of Livestock Industry, all of Springfield; and Dr. R. C. Klussendorf, assistant executive secretary of the AVMA, Chicago, also attended the meeting.

s/B. L. LAKE, Winnebago County Veterinarian.

Tularemia.—According to *Illinois Health Messenger*, an average of 135 cases of tularemia have been reported annually in the state since 1926. In 1939, there were 485 cases, and in the last eight years, 56 deaths per 1,000 cases. The mortality for the period of record was 5.6 per cent.

Iowa

East Central Society.—The East Central Iowa Veterinary Medical Society held its April 13 meeting at the Hotel Jefferson, Iowa City, under the auspices of the Johnson County Veterinary Medical Association. Thirty-five veterinarians, representing 11 counties, were in attendance. The program follows.

Dr. Jess G. Irwin, Iowa City: "Veterinary Surgery" (with illustrations).

Dr. John B. Bryant, Mount Vernon: "The Classical Diagnoses of Bovine Disorders" and "Bronchosepticus Infection of Baby Pigs." Dr. Bryant also conducted a question box on general practice problems.

Dr. Joe W. Giffey, federal veterinarian in charge of swine disease control, Cedar Rapids: "Differential Diagnosis of Infectious Transmissible Gastroenteritis in Swine." Dr. A. C. Peterson, Washington, led the discussion.

Dr. John B. Gingery gave a case report on lard poisoning of swine which was followed by a lengthy discussion led by Dr. Tom T. Bowstead, DeWitt.

Dr. Darrell T. White, Williamsburg: "Nutritional Scours in Pigs."

Dr. S. G. Paul, Clarence: "Respiratory Troubles in Baby Pigs Caused by Profuse Use of Dry Dip."

Dr. Warren E. Bowstead, Lowden: "Plugging the Opening in the Urethra of Cows Following Operation for Relief of Urinary Calculi." Dr. Gingery led the discussion and gave a case report wherein the lining of the bladder sloughed off and passed down into the urethra to plug the opening.

s/N. R. WAGGONER, Secretary.

North Central Association.—The annual meeting of the North Central Iowa Veterinary Medical Association was held in the Warden Hotel, Fort Dodge, on April 20, 1950. The scientific program follows.

"Outbreak," the story of foot-and-mouth disease, a new sound film from the AVMA film library, was shown.

Dr. L. H. Schwarte, professor, Veterinary Research Institute, and member of the Institute for Atomic Research, Iowa State College, Ames: "Use of Radioactive Tracers in Medicine."

Dr. L. E. Harris, director, Pharmaceutical Laboratories, Norden Laboratories, Lincoln, Neb.: "New Aspects of Sulfonamide and Antibiotic Therapy."

Drs. H. U. Garrett, state veterinarian, Des Moines, and C. W. Brown, U. S. Bureau of Animal Industry, Des Moines: "Remarks."

Dr. F. E. Brutsman, Traer: "Some Phases of General Practice."

Wives of Fort Dodge veterinarians were hostesses to the women at a 1:00 o'clock luncheon at the Warden Hotel.

s/B. J. GRAY, *Secretary*.

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Equine Encephalomyelitis.—The incidence of infectious equine encephalomyelitis took a drastic drop in Iowa in 1949, according to a release from H. U. Garrett and C. W. Brown, chief and veterinarian in charge, respectively, of the U.S. Bureau of Animal Industry, Des Moines. This drop may be partly the result of low precipitation and water table, but probably also was affected by the marked drop in horse and mule population. Whereas the 1948 census showed 356,000 horses and mules, the 1949 figures have fallen to 298,000. The eastern type of encephalomyelitis was not reported in Iowa.

Indiana

Spring Clinic.—The spring veterinary clinic sponsored by the Michiana Veterinary Medical Association was held on May 11, 1950, in the Mishawaka, Ind., sale barn. The clinic included a section on small animals, in charge of Dr. Julius Fishler, Elkhart, Ind., and a section on large animals, in charge of Dr. Roy Wescott, Constantine, Mich. Dr. Frank R. Booth, Elkhart, Ind., introduced the participating veterinarians.

The women were entertained at a tea in the Bronzewood Room of the Hotel LaSalle, South Bend, and joined the men for the evening banquet.

s/R. W. WORLEY, *Secretary*.

Kentucky

Dr. Cann in Practice Fifty-Nine Years.—Dr. Cornelius Cann (CVC '91), Lexington, Ky., has practiced veterinary medicine for more than fifty-nine years. Dr. Cann, who will be 88 years old in October, attended the Kentucky Derby this year for the forty-fifth time. Since 1907, his practice has been mainly at the race tracks. —*The Blood-Horse*, April 22, 1950.

Maine

State Association.—The April 4 meeting of the Maine Veterinary Medical Association was held at the Windsor Hotel, Bangor. After the business meeting and banquet, Dr. Donald W. Baker, professor of veterinary parasitology, New York State Veterinary College, Cornell University, Ithaca, spoke on "Adventures in Veterinary Parasitology." His discussion featured differential diagnosis in various animal parasitisms and was well illustrated with kodachrome slides.

s/STANFORD D. MERRILL, *Secretary*.

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Practitioners' Roundtable.—The February meeting of the Veterinary Practitioners' Roundtable of Maine and New Hampshire was held at the home of Dr. Bertrand B. Dionne in Brunswick, Maine. Dr. H. N. Eames, Brunswick was the

host at the March meeting with 12 in attendance. Dehorning cattle and suture materials were the topics of discussion at this meeting.

Dr. H. N. Eames is president and Dr. Robert Monahan, Brunswick, is secretary of this organization.

s/ROBERT MONAHAN, *Secretary*.

Manitoba

Provincial Association.—On March 30 and 31, 1950, the Veterinary Association of Manitoba celebrated its Diamond Jubilee Anniversary by holding its sixtieth annual convention at the Fort Garry Hotel in Winnipeg. Many outstanding speakers were present, and a heavy agenda of business was transacted. The problem of European veterinarians seeking recognition and admission to provincial associations occupied a considerable portion of the business session.

Members of the Association and visitors were entertained at lunch by Canada Packers at the Guest House in St. Boniface.

During the afternoon of the first day, the motion picture "Outbreak" was shown, through the courtesy of Dr. T. Childs; Dr. A. Hodge, Hamiota, conducted a practitioners' forum; and Dr. A. L. MacNabb, principal, Ontario Veterinary College, reported on highlights on research at the College.

Dean Grant MacEwen of the faculty of agriculture, University of Manitoba, was guest speaker at the banquet. He related the history of the early cattle industry of Manitoba.

During the second day, Dr. A. Savage, Winnipeg, gave an illustrated address on "The Early History of the Veterinary Association of Manitoba"; Dr. T. Childs, veterinary director general, discussed "Tuberculosis-Free Areas in Canada"; Dr. J. A. Henderson, of the Ontario Veterinary College, spoke on "Sterility in Cattle"; and Dr. J. Farquharson, Fort Collins, Colo., showed colored movies of various operations.

Officers elected for the coming year are Drs. E. C. Chamberlayne, president; F. A. Hodge, vice-president; and E. J. Rigby, secretary-treasurer and registrar.

s/J. M. ISA, *Secretary*.

Massachusetts

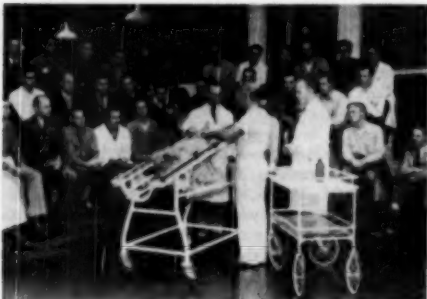
State Association.—The regular monthly meeting of the Massachusetts Veterinary Association was held March 22, 1950, at the Hotel Statler in Boston with 65 veterinarians in attendance. Dr. Orvar Swenson (M.D.), surgeon at the Children's Hospital in Boston, gave an informative lecture on modern surgical techniques. In the course of his paper, Dr. Swenson discussed the use of sulfonamides and antibiotics, and indicated that, while they served a useful purpose, they could never serve as a substitute for good surgical technique. A method of performing an intestinal anastomosis by a single layer of silk mattress sutures was illustrated. An interesting innovation was the use of stereopticon slides which made his illustrations appear three-dimensional.

Guests at the meeting were Drs. I. Forest Huddleson, Michigan State College, East Lansing; Niel Pieper, Middletown, Conn., president of the New England Veterinary Medical Association; and Edwin Laitinen, member of the Executive Board (9th District) of the AVMA.

S/C. LAWRENCE BLAKELY, *Secretary*.

Michigan

Student Discussion.—Students at the School of Veterinary Medicine, Michigan State College, take part in one of the regular discussion periods which members of the clinical staff



Veterinary medical students at MSC participating in clinical discussion. This picture appeared on the cover of the MSC *Veterinarian*.

arrange. A meeting of this kind is held each week so that every student may hear of and follow through on the interesting cases which have been presented in the clinic during the preceding weeks. In this way, students who may have seen a case once or twice while it was being treated by their classmates are able to get the complete story of the case, including the final outcome.—*MSC Veterinarian*.

Minnesota

Southern Society.—The Southern Minnesota Veterinary Medical Society met on April 27 at the Hormel Sales Cabin for its annual spring meeting. Dr. Damon Catron, associate professor, Department of Animal Husbandry, Iowa State College, discussed "Recent Developments in Swine Nutrition." Dr. Lawrence E. Carpenter, of the Hormel Institute, presented data from experiments in which antibiotics were fed swine to stimulate growth.

S/T. A. YOUNG, JR., *Secretary*.

New York

New York City Association.—The regular meeting of the Veterinary Medical Association of New York City, Inc., was held in the Keystone Room of the Hotel Statler on March 1, 1950. Speakers and their subjects in a panel discussion of "Clinical Uses of Antibiotics in Small Animals"

were: Dr. Leon A. Kanegis, head, clinical research, Animal Industry Section, Lederle Laboratories, Pearl River, "Aureomycin"; Dr. Harold T. Rose, Darien, Conn., "Bacitracin"; Dr. Ellis P. Leonard, director, Small Animal Clinic, New York State Veterinary College, Cornell University, Ithaca, "Penicillin"; Dr. W. G. Venzke, Department of Veterinary Medicine, The Ohio State University, Columbus, "Streptomycin"; and Dr. S. F. Scheidy, director, Veterinary Medical Research Division Sharp & Dohme, Philadelphia, Pa., "Tyrothricin."

Dr. J. J. Collins, Food and Drug Administration, Washington, D.C., discussed the role of the Federal Security Agency under the Food and Drug Act to administer the introduction of new antibiotics and to protect the user against false claims.

S/C. R. SCHROEDER, *Secretary*.

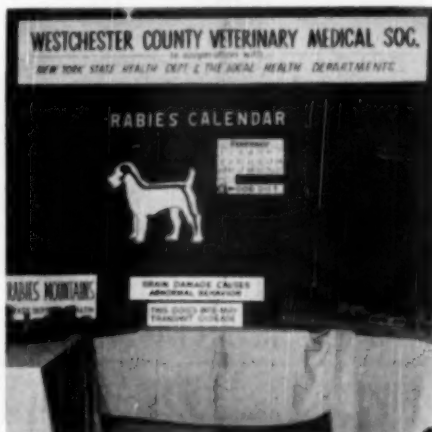
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Dr. DeCamp Sells Practice.—Dr. C. E. DeCamp, Scarsdale, sold his small animal practice recently to Dr. A. A. Appleby, formerly of Yonkers. Dr. DeCamp established his hospital practice more than fifteen years ago after having spent several years in the pharmaceutical field. Dr. Appleby took over the practice on Feb. 1, 1950.

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Veterinarians Sponsor Booth at Sportsmen's Show.—The New York State and Westchester veterinary medical societies and the Westchester Health Department sponsored a booth on rabies at the recent Sportsmen's Show of the Southern New York Fish and Game Association at County Center, White Plains, March 27-April 2, 1950. The space was donated by the fish and game association in public interest.

The idea was conceived by Dr. Roy Spaulding and executed by Drs. Edward Kennelly and Alexander Zeissig of the Westchester County and New York State health departments, respectively. Indi-



Booth sponsored by veterinarians at sportsmen's show.

vidual veterinarians of the Westchester Society donated their time to man the booth and answer inquiries.

Oregon

Dr. Younce New State Veterinarian.—Dr. R. R. Younce, Battle Ground, Wash., has recently been appointed state veterinarian of Oregon. After receiving his D.V.M. degree, Dr. Younce was employed by the U.S. Bureau of Animal Industry in a variety of capacities. He served in World War II, and since the war has been in private practice. Dr. Younce will assume his office on July 1, 1950.—*Western Livestock Journal*, March 30.

Vermont

Dr. Waller Joins Staff at University of Delaware.—On March 1, 1950, Dr. E. F. Waller, who has been professor and head of the Department of Animal Pathology at the University of Vermont for nearly five years, assumed his duties as professor and head of the Department of Animal Industry at the University of Delaware. His new work will include poultry, dairy, and animal husbandry and disease work.

s/W. D. BOLTON, *Secretary*.

Washington

Conference for Veterinarians Cancelled.—The Conference for Veterinarians, scheduled to be held at the State College of Washington on June 15-17, 1950, has been cancelled.

s/J. E. McCov, *Chairman*,
Administrative Committee.

Wisconsin

Milwaukee Association.—The monthly meeting of the Milwaukee Veterinary Medical Association was held April 18, 1950, in the Wisconsin Humane Society lecture hall. Dr. G. J. Marold, program chairman, arranged an interesting program on "X-Ray Technique."

s/K. G. NICHOLSON, *Secretary*.

Field Day for Ranchers and Veterinarians.—The 1950 Fur Farmers' Field Day sponsored by Fromm Laboratories, Inc., will be held in Grafton on July 19. Lectures and demonstrations will stress the practical application of the latest methods of disease control, the critical factors which affect mink feeding and housing, the use and misuse of drugs, and other timely subjects. All classes will be conducted by veterinarians experienced in the fur industry. Lunch will be served on the grounds. Inquiries should be addressed to Fromm Laboratories, Inc., Grafton, Wis.

FOREIGN NEWS

Germany

Bovine Tuberculosis.—Examination of 412,000 cattle on 45,945 farms indicated that 128,900 animals on some 30,000 farms were infected with

tuberculosis. As was to be expected, the larger herds showed a greater percentage of infected animals.

As a result of this survey in 18 districts of Prussia, it is planned to conduct a tuberculin test on all herds, destroy the reacting animals, raise healthy herds by keeping calves apart from the infected herds and by segregating cows from other domestic animals, particularly hogs and chickens. Simultaneously, pasteurization of milk will be encouraged wherever possible.—*M. W. Altaffer*, *American Consul General, Bremen*.

Japan

American Veterinarians Recommended to Honorary Membership of National Association.

—In a letter to Dr. C. P. Zepp, Sr., president of the AVMA, Dr. Torai Shimamura, president of the Japan Veterinary Medical Association stated that the first national convention of the Japanese association, March 26-29, 1950, was successful far beyond expectation. More than 1,500 veterinarians attended, including 14 American veterinarians and an American physician. Colonel M. W. Scothorn read the address prepared by Dr. Zepp and President Shimamura read the Japanese translation. For further details of the program see the May JOURNAL, p. 406.

Col. Oness H. Dixon, Jr., and Lieut. Col. M. W. Scothorn, first and second chief, respectively, of the Veterinary Affairs Division, Public Health and Welfare Section, General Headquarters of the Supreme Commander for the Allied Powers, were recommended to lifetime honorary membership of the Japan Veterinary Medical Association for their part in the founding of the association and in the improvement of veterinary affairs and education in Japan.

s/TORAI SHIMAMURA, *President*.

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National Association Code of Ethics.—A code of ethics for veterinarians was adopted by the Japan Veterinary Medical Association at its recent meeting.

An English translation of the Code was forwarded to us by Dr. Sadamoto Sakasegawa, secretary of the Japan Association. In general, the scope of the Code is similar to that of the AVMA Code, being more specific in some instances and less so in others.

The keynote of the Code seems to lie in the first paragraph under *Duty* which reads as follows: "It is a veterinarian's duty to the people of his community to take charge of livestock sanitation, to assume leadership in animal husbandry so as to contribute to the increased production of food by breeding healthy animals, and to strive for improved public health."

Russia

Artificial Insemination.—The Department of Agriculture of the U.S.S.R. has published an illustrated manual of 176 pages on artificial insemination for the guidance of livestock farmers. The translated title is "Artificial Insemination of Farm

Animals in the Soviet Union." An English translation is available from Angus and Robertson, Sydney, Australia, and London, England. Price 42 shillings.

Soviet Medicine.—According to George Moorad (*Am. Mercury*, Nov. 1949), medicine in Russia is not socialized as in Great Britain and New Zealand. There is a private service for those who are well-to-do; an intermediate service at less cost for salaried men, government officials, wealthy farmers, black market merchants, actors, and the like; and a free service for the masses. The latter are assigned to specific clinics, and to doctors of their respective caste level and place of employment. Commenting on the bare facts, *Medical Times* murmurs: "Consider the implications and shudder."

VETERINARY MILITARY SERVICE

Air Force Medical Service to Grant Reserve Commissions Under ROTC Program.—Graduates of medical, dental, pharmacologic, and veterinary colleges who participate in the medical ROTC program of the U.S. Army may now receive commissions in the Medical Service, U.S. Air Force Reserve, according to a recent agreement between the Army and the Air Force.

Prior to the agreement, it was necessary for students in these categories who preferred reserve commissions in the Air Force to accept commissions in the Army and then request transfer.

Students may obtain full information from the Professor of Military Science and Tactics in their college or university; or, upon written request from the Surgeons General of the Army or Air Force, Washington 25, D.C.

Veterinary Corps Officers Eligible for Appointment in Air Force Medical Service.—Reserve officers on active duty in the Air Force Veterinary Corps now have an opportunity for appointment in the Regular Air Force Medical Service. Officers must have served on extended active duty with the Air Force Medical Service not less than six months immediately prior to date of submission of application.

To obtain a regular commission in the Veterinary Corps, an officer must be 21 years old but not more than 32 on the date of appointment, plus the number of days, months, and years of active commissioned service performed in the U.S. Army or Air Force after Dec. 13, 1947, but not to exceed five years. He must be a graduate of a college of veterinary medicine approved by The Surgeon General. Commissions will be as second lieutenant unless the applicant is entitled to a higher grade by service credit.

Applications will be accepted twice yearly, between February 1 and April 1, and between August 1 and October 1 of any year. To allow sufficient time for receipt of application following this an-

nouncement, the period will be extended to June 1, 1950. All applications will be forwarded through channels to the Director of Training, Headquarters, USAF, Washington 25, D.C.

STATE BOARD EXAMINATIONS

Minnesota.—The Veterinary Examining Board of the State of Minnesota will hold examinations July 11-12, 1950. Application blanks may be obtained from Dr. D. B. Palmer, Veterinary Examining Board, Wayzata, Minn., executive secretary.

Oklahoma.—The Oklahoma Board of Veterinary Medical Examiners will hold an examination on June 14-15, 1950, at the Oklahoma A. & M. College, Stillwater. Dr. J. B. Corcoran, 127 N. W. 23rd st., Oklahoma City, Okla., secretary.

BIRTHS

Dr. (TEX '47) and Mrs. L. B. Tennison, Jr., Pearl River, N. Y., announce the birth of Ronald Bennett, on Feb. 21, 1950.

Dr. (OSU '49) and Mrs. Robert R. Gibbs, New Orleans, La., announce the birth of their fourth son, Thomas Edward, on March 29, 1950.

Dr. (LEM '39) and Mrs. Tadeusz M. Dubrawski, Los Angeles, Calif., announce the birth of a son, Peter Andrew, on April 8, 1950.

DEATHS

***Russell A. Atchley** (UP '18), 55, Oxford, Pa., died on April 3, 1950, as the result of a carcinoma. Dr. Atchley had been employed by Abbott's Dairies as a field veterinarian since 1929. He was admitted to the AVMA in 1919.

***A. C. Burt** (ONT '11), 58, Simcoe, Ont., died on April 6, 1950, from a heart attack. Dr. Burt was elected warden of Norfolk, served two terms as mayor of Simcoe, and one term in the provincial Legislature. Dr. Burt was admitted to the AVMA in 1941. He is survived by his widow and one son.

***Benjamin G. Darling** (KVCV '18), 60, Huntington, Calif., died Feb. 9, 1950, from a heart attack. Dr. Darling practiced in Hooper, Neb., served in World War I, and had entered meat inspection service in Los Angeles a few months before his death. He was a member of the AVMA. Dr. Darling is survived by his widow, two daughters, and two sons, one of whom is a student at the Kansas State College School of Veterinary Medicine.

Adam Fisher, (USCVS '04), Charlotte, N. Car., died Feb. 20, 1950. The oldest veterinary practitioner, in length of service, in North Carolina, Dr. Fisher had practiced in Charlotte for more than forty-five years. He had served the North Carolina State Veterinary Medical Association as presi-

*Indicates members of the AVMA.

dent and secretary-treasurer and had been a member of the AVMA, having served as resident secretary from 1907-1911.

***George M. Fox** (CIN '16), 63, Aurora, Ind., died early in March, 1950, of pneumonia. He is survived by his widow, a daughter, and two sons. Dr. Fox was admitted to the AVMA in 1944.

Claude E. Fuller (CVC '08), Lordsburg, N. M., died on Dec. 16, 1949. Dr. Fuller had practiced at Hettinger, S. Dak., until he retired to New Mexico for his health.

J. R. George (IND '15), Middletown, Ind., died March 5, 1950. Dr. George had been in general practice.

***William G. Gregory** (KCVC '07), 74, San Antonio, Texas, died on March 27, 1950. Dr. Gregory had been in general practice after receiving his D.V.M. degree until 1934, when he became field representative in California and Texas for the U.S. Bureau of Animal Industry. He retired in 1949. Dr. Gregory was a member of the Texas State Veterinary Medical Association and of the AVMA. He is survived by his widow; a son, Dr. R. C. Gregory (STJ '22), Jacksonville, Texas; and a daughter.

***Michael J. Griffin** (ONT '30), 46, Holyoke, Mass., died suddenly at his Florida home in St. Petersburg where he had gone with his wife and daughter on Nov. 14, 1949, to recuperate from an illness. Dr. Griffin had held the offices of city inspector of animals and inspector of slaughter in Holyoke. He was a candidate for mayor, but because of his illness, his name was withdrawn. Dr. Griffin was a member of the Massachusetts State and the New England Veterinary Medical associations, and of the AVMA.

Henry J. Hagerty (ONT '00), 85, Dubuque, Iowa, died on Jan. 4, 1950, after several years of poor health. He had practiced in Dubuque after receiving his D.V.M. degree until his retirement nine years ago.

Clyde N. James (KCVC '10), Lubbock, Texas, died Nov. 9, 1950. Dr. James had retired some time ago.

***W. H. Kern** (KCVC '13), 61, Winston-Salem, N. Car., died of a heart attack on March 18, 1950. He had practiced in Winston-Salem from the time he received his D.V.M. degree until his death, except during World War I when he served in the Veterinary Corps of the U.S. Army. Dr. Kern was a member of the North Carolina State Veterinary Medical Association and of the AVMA.

Harry W. Kornobis (NYCVS '93), 80, Brooklyn, N. Y., died on Dec. 6, 1949. Dr. Kornobis was elected to the state Assembly in 1912, and served on the Committee on Public Health and Public Institutions.

J. O. Langevin (MONT '10), 59, Westmount, Quebec, died Nov. 20, 1949. Dr. Langevin, who had retired, had been a member of the AVMA.

***Donovan O. Meskimen** (COLO '40), 37, Coleridge, Neb., died Jan. 24, 1950. Dr. Meskimen was admitted to the AVMA in 1940.

Fred J. Montague (ONT '05), 68, Caro, Mich., died of a heart ailment on Dec. 9, 1949. Dr. Montague had practiced in Gagetown, Fairgrove, and Reese, Mich., until he accepted a state position in 1930.

Harry H. Myers (OSU '07), 66, Louisville, Ky., died March 17, 1950. After serving as veterinary inspector for the U. S. Department of Agriculture for thirty-eight years, Dr. Myers retired in 1944. He had been a member of the AVMA.

John Francis Myers, 88, Hennessey, Okla., who had practiced veterinary medicine since 1893, died on Feb. 4, 1950.

Charles B. O'Hara (CIN '12), 63, Eaton, Ohio, died in August, 1949. Dr. O'Hara had been a member of the AVMA.

Alfred J. Pilon (CVC '12), 69, Champaign, Ill., died on Jan. 2, 1950, following a heart attack. Dr. Pilon had practiced in Champaign for thirty-seven years.

Francis E. Rathbun (KCVC '08), Hayes Center, Neb., died June 16, 1949. Dr. Rathbun had retired from active practice some time ago.

William J. Reagan (UP '95), Perkiomenville, Pa., died Feb. 22, 1950. Dr. Reagan had been a member of the AVMA.

***Bertsch Royer** (ONT '98), 84, Shawano, Wis., died on Feb. 24, 1950. A resident of Shawano for fifty-one years, Dr. Royer established his veterinary practice in 1899; served three consecutive terms as mayor, 1912-1918; served as assistant state veterinarian in charge of tuberculosis eradication, 1918-1936; reestablished practice in Shawano in 1937; and retired in 1945, after the death of his wife. He was a charter member of the Wisconsin Veterinary Medical Association, and had been a member of the AVMA for thirty-five years.

Alvin O. Rustad (CVC '07), 68, Fergus Falls, Minn., died on Oct. 25, 1949, from a heart attack. Dr. Rustad had practiced in Fergus Falls for forty-two years and had served as alderman of that city for eight years.

Carl J. Scott (ISC '08), 68, Knoxville, Iowa, died March 18, 1950, from a heart attack. Dr. Scott had practiced in Pleasantville, Iowa, prior to entering the service of the Bureau of Animal Industry. He began practice in Knoxville in 1910. Well known for his devotion to his profession and his interest in civic affairs, he had served as president and secretary of the Iowa Veterinary Medical Association and as editor of the *Iowa Veterinarian*. He also served for a time as assistant state veterinarian. Dr. Scott is survived by his widow and a son, Dr. Roger C. Scott with whom he was associated in practice.

***John M. Timms** (GR '06), 66, Hudson, Mich., died March 27, 1950, of coronary thrombosis. Dr. Timms was a member of the Michigan State, the Michigan-Ohio, and the Whitney Veterinary Medical associations, and of the AVMA.

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ITALICS

It is obvious that all critical editors regard consistent italicizing next, in order of importance, to capitalization and punctuation. Italics, capitals, and stop marks have such visual prominence on the printed page that they hit the critic's eye with a bang. The difference is that setting printed matter apart with italics is a matter of good taste rather than of grammar. Italicizing is an editor's, not a grammarian's, job.

The whole subject of italicization is confused because tastes differ all the way from no-italics-at-all to objectionable overuse. Moreover, the orthodox rules set down by stylists for general writing have to be ignored by editors when, and if, their printers do not have the desired sloping-face type in their type-setting equipment. [The JOURNAL of the AVMA does not use italics in double-column heads on that account.] A great deal of current veterinary literature is set in type by local printers who are not expected to have the whole gamut of type facings at their disposal.

Furthermore, confusion arises from the lack of uniformity in the use of italics by publishers. For example, the *Journal of the American Medical Association* does not italicize genera and species. Although editors of scientific publications regard the use of italics obligatory in specified places and their omission a display of bad taste (or something), all would agree that arbitrary omission is less displeasing than lack of uniformity or objectionable overitalicizing, all three of which are vetoed by AVMA publications in favor of the kind of italicization believed to be most suitable for veterinary science. Future installments of this series will enumerate the AVMA rules in more detail, but as an outline, italicize:

- a) words, phrases, sentences, and paragraphs to lend force, emphasis, importance;
- b) foreign words and phrases and their abbreviations provided such terms have not yet been anglicized;
- c) titles in textual material: articles, books, etc.;

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COMING MEETINGS

Notices of Coming Meetings must be received by 8th of month preceding date of issue

Texas, Third Annual Veterinary Conference.

School of Veterinary Medicine, A. & M. College of Texas, College Station, June 8-9, 1950. R. D. Turk, School of Veterinary Medicine, A. & M. College of Texas, College Station, chairman.

Utah Veterinary Medical Association. Annual meeting. Cedar City, Utah, June 8-9, 1950. Edward A. Tugaw, 3015 S. State St., Salt Lake City, Utah, secretary.

Alabama Polytechnic Institute, twenty-sixth annual conference for veterinarians. Alabama Polytechnic Institute, Auburn, Ala., June 8-10, 1950. R. S. Sugg, School of Veterinary Medicine, Alabama Polytechnic Institute, Auburn, Ala., dean.

Idaho Veterinary Medical Association. Summer meeting. Shore Lodge, McCall, Idaho, June 12-13, 1950. Arthur P. Schneider, Room 108, State House, Boise, Idaho, secretary.

Oklahoma A. & M. College. Conference for veterinarians. Oklahoma A. & M. College, Stillwater, Okla., June 12-13, 1950. C. H. McElroy, dean.

Ohio, annual conference for veterinarians. The Ohio State University, Columbus, June 14-16, 1950. R. E. Rebrassier, College of Veterinary Medicine, The Ohio State University, Columbus, chairman.

Washington State College Conference for Veterinarians—**cancelled**. This meeting was scheduled for June 15-17, 1950, at the College of Veterinary Medicine, State College of Washington, Pullman, Wash. J. E. McCoy, chairman, Administrative Committee.

Mississippi Valley Veterinary Medical Association. Annual summer picnic and barbecue. The Horse-Shoe, Lake Storey, June 18, 1950. Galesburg, Ill. R. J. Kirkpatrick, 1235 N. Henderson St., Galesburg, Ill., secretary.

Wyoming Veterinary Medical Association. Annual meeting. Sheridan, Wyo., June 18-19, 1950. Jo Browne, Box 960, Laramie, Wyo., secretary.

Missouri Veterinary Medical Association. Annual summer meeting. Colonial Hotel, Springfield, Mo., June 19-20, 1950. J. L. Wells, Box 676, Kansas City, Mo., secretary.

Montana Veterinary Medical Association. Annual meeting. Finlen Hotel, Butte, Mont., June 19-21, 1950. E. A. Tunnick, Bozeman, Mont., secretary.

Wisconsin Postgraduate Conference for Veterinarians. University of Wisconsin College of Agriculture, Madison, Wis., June 20-21, 1950. C. A. Brandy, University of Wisconsin College of Agriculture, Madison 6, Wis., chairman.

(Continued on p. 20)

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(WATCH YOUR ENGLISH — continued from p. 18)

- d) titles of persons after their signatures;
- e) cut in headlines of paragraphs;
- f) letters *a, b, c*, etc. used in outlines or heading series of paragraphs;
- g) genus and species of organisms when used together;
- h) algebraic and other mathematical letters;
- i) reference to particular letters or words;
- j) Greek letters: β , γ , μ , etc.
- k) miscellaneous letters of various sciences (*q.v.*) too numerous to classify here.

(To be continued)

Board Election at Allied Labs

Dr. E. A. Cahill, president and chairman of the board of Allied Laboratories, Kansas City, Mo., announces that at a recent stockholders' meeting of Allied Laboratories the following members of the organization were elected to the Board of Directors: Hibbard O. Ball, secretary, Pitman-Moore Company Division, Indianapolis, Ind.; M. C. Bartlett, vice-president in charge of export, Pitman-Moore Company Division, Indianapolis, Ind.; H. C. Deakin, West Coast manager, Pitman-Moore Company Division, Sacramento, Calif.

(COMING MEETINGS — continued from p. 18)

Northeastern Pullorum Conference. University of Vermont, Burlington, Vt., June 20-21, 1950. W. D. Bolton, Related Services Division, University of Vermont, Burlington, Vt., program chairman.

Vermont Veterinary Medical Association. Annual summer meeting. Camp Elizabeth Inn, Newport, Vt., June 22-23, 1950. W. D. Bolton Related Services Division, University of Vermont, Burlington, Vt., secretary.

New Jersey, The Veterinary Medical Association of. Semiannual meeting. Haddon Hall, Atlantic City, N.J., June 22-23, 1950. J. R. Porteus, P.O. Box 938, Trenton, N.J., secretary.

American Society for the Study of Sterility. Sir Francis Drake Hotel, San Francisco, Calif., June 24-25, 1950. Walter W. Williams, 20 Magnolia Terrace, Springfield 8, Mass., secretary.

Georgia Veterinary Medical Association. Annual meeting. Hotel Oglethorpe, Brunswick, Ga., June 26-27, 1950. Chas. C. Rife, 420 Edgewood Ave., N. E., Atlanta, Ga., secretary.

California State Veterinary Medical Association. Annual meeting. Hotel Claremont, Berkeley,

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(COMING MEETINGS — continued from p. 20)

- Calif., June 26-28, 1950. C. E. Wicktor, 203 Administration Bldg., Union Stock Yards, Los Angeles 58, Calif., program chairman.
- Maritime Veterinary Conference. Second annual joint conference of the three maritime veterinary associations. Mount Allison University, Sackville, N.B., June 27-29, 1950. J. F. Frank, Box 310, Sackville, N.B., secretary.
- Maryland State Veterinary Medical Association. Summer meeting. Hotel George Washington, Ocean City, Md., June 29-30, 1950. J. Walter Hastings, Sr., Cambridge, Md., secretary.
- New York State Veterinary Medical Society. Annual meeting. Saranac Inn, Saranac, N. Y., June 29-July 1, 1950. J. S. Halat, 1231 Gray Ave., Utica, N. Y., executive secretary.
- Ontario Veterinary College. Refresher course. The Veterinary College, Guelph, Ont., July 5-18, 1950. A. L. MacNabb, Ontario Veterinary College, Guelph, principal.
- Michigan State Veterinary Medical Association. Annual meeting. Michigan State College, East Lansing, Mich., July 6-7, 1950. B. J. Killham, Michigan State College, East Lansing, Mich., secretary.
- Kentucky Veterinary Medical Association. Annual meeting. Seelbach Hotel, Louisville, Ky., July 12-13, 1950. Ross Brown, Department of Animal Pathology, University of Kentucky, Lexington 29, Ky., secretary.
- Northwest Veterinary Medical Conference. Annual meeting. Winthrop Hotel, Tacoma, Wash., July 17-19, 1950. J. L. Ellis, 2022 E. 4th St., Olympia, Wash., secretary.
- Virginia State Veterinary Medical Association. Summer meeting. Hotel Chamberlin, Old Point Comfort, Va., July 17-19, 1950. Harry K. Royer, 1404 Main St., Lynchburg, Va., secretary.
- Ontario Veterinary Association. Summer meeting. Ontario Veterinary College, Guelph, Ont., July 19-21, 1950. A. L. MacNabb, Ontario Veterinary College, Guelph, principal.
- American Veterinary Medical Association. Annual meeting. The Municipal Auditorium, Miami Beach, Fla., Aug. 21-24, 1950. J. G. Hardenbergh, American Veterinary Medical Association, 600 S. Michigan Ave., Chicago 5, Ill., executive secretary.
- Tennessee Short Course for Veterinarians. University of Tennessee, Knoxville, Tenn., Sept. 7-8, 1950. Dennis Coughlin, 1713 Yale Ave., Knoxville 16, Tenn., resident secretary.
- Purdue University. thirty-eighth annual short course for veterinarians, Oct. 4-6, 1950. L. M. Hutchings, Purdue University School of Agriculture, Lafayette, Ind., chairman.
- New England Veterinary Medical Association. Annual meeting. Mohican Hotel, New London, Conn., Oct. 10-11, 1950. C. Lawrence Blakely, 180 Longwood Ave., Boston, Mass., secretary.

(Continued on p. 24)

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(COMING MEETINGS — continued from p. 22)

Iowa, Eastern Veterinary Medical Association. Annual meeting. Hotel Montrose, Cedar Rapids, Iowa, Oct. 19-20, 1950. N. R. Waggoner, Olin, Iowa, secretary.

Mississippi Valley Veterinary Medical Association. Fall meeting. Pere Marquette Hotel, Peoria, Ill., Nov. 1-2, 1950. R. J. Kirkpatrick, 1235 N. Henderson St., Galesburg, Ill., secretary.

United States Livestock Sanitary Association. Annual meeting. Westward-Ho Hotel, Phoenix, Ariz., Nov. 1-3, 1950. Dr. R. A. Hendershott, 1 West State St., Trenton, N.J., secretary.

Southern Veterinary Medical Association. Annual meeting. Baker Hotel, Dallas, Texas, Nov. 6-8, 1950. A. A. Husman, 320 Agricultural Bldg., Raleigh, N. Car., secretary.

Third Inter-American Congress on Brucellosis, The. Washington, D.C., Nov. 6-10, 1950. Wesley W. Spink, University of Minnesota Medical School, chairman.

Oklahoma Veterinary Medical Association. Annual meeting. Skirvin Hotel, Oklahoma City, Okla., Jan. 8-9, 1951. Lewis H. Moe, 1736 W. 3rd Ave., Stillwater, Okla., secretary.

Indiana Veterinary Medical Association. Annual meeting. Hotel Severin, Indianapolis, Ind., Jan. 10-12, 1951. W. W. Garverick, Zionsville, Ind., secretary.

Iowa Veterinary Medical Association. Annual meeting. Hotel Fort Des Moines, Des Moines, Iowa, Jan. 17-19, 1951. F. B. Young, P.O. Box 6, Wauke, Iowa, secretary.

Regularly Scheduled Meetings

Bay Counties Veterinary Medical Association, the second Tuesday of each month. Russell P. Cope, 1205 San Pablo Ave., Berkeley 6, Calif., secretary.

Central California Veterinary Medical Association, the fourth Tuesday of each month. Thomas Eville, Route 1, Box 136H, Fresno, Calif., secretary.

Chicago Veterinary Medical Association, the second Tuesday of each month. Robert C. Glover, 1021 Davis St., Evanston, Ill., secretary.

East Bay Veterinary Medical Association, bi-monthly, the fourth Wednesday. O. A. Soave, 5666 Telegraph, Oakland, Calif., secretary.

(Continued on p. 26)



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(COMING MEETINGS — continued from p. 24)

Fayette County Veterinary Association, Iowa, the third Tuesday of each month, except in July and August, at Pa and Ma's Restaurant, West Union, Iowa. Donald E. Moore, Box 178, Decorah, Iowa, secretary.

Greater St. Louis Veterinary Medical Association, Ralston-Purina Research Building, St. Louis, Mo., the first Friday in February, April, June, and November. W. C. Schofield, Dept. of Animal Pathology, Ralston-Purina Co., St. Louis 2, Mo., secretary.

Houston Veterinary Medical Association, Houston, Texas, the first Thursday of each month. Edward Lepon, Houston, Texas, secretary-treasurer.

Illinois Valley Veterinary Medical Association, the second Wednesday of even-numbered months. R. A. Case, 400 S. Garden St., Peoria, Ill., secretary.

Indiana Tenth District Veterinary Medical Association, third Thursday of each month. L. A. Snider, New Palestine, Ind., secretary.

Jefferson County Veterinary Society, Louisville, Ky., the first Wednesday evening of each month. F. M. Kearns, 3622 Frankfort Ave., Louisville 7, Ky., secretary.

Kansas City Veterinary Medical Association, the third Tuesday of each month, in the Hotel Continental, 11th and Baltimore, Kansas City, Mo. K. M. Curtis, 70 Central Ave., Kansas City 18, Kan., secretary.

Keystone Veterinary Medical Association. School of Veterinary Medicine, University of Pennsylvania, Philadelphia, Pa., the fourth Wednesday of each month. Raymond C. Snyder, N. W. Cor. Walnut St. and Copley Rd., Upper Darby, Pa., secretary.

(Continued on p. 28)



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Wart Vaccine.—Papillomas, of the non-operable kind, because of their number or sprawl, may yield to a dose or two of wart vaccine.

(COMING MEETINGS — continued from p. 26)

Massachusetts Veterinary Association. Hotel Statler, Boston, Mass., the fourth Wednesday of each month. C. L. Blakely, Angell Memorial Animal Hospital, 180 Longwood Ave., Boston, Mass., secretary-treasurer.

Michiana Veterinary Medical Association. Hotel Elkhart, Elkhart, Ind., 7:00 p.m., the second Thursday of each month. R. W. Worley, 3224 Lincoln Way West, South Bend, Ind., secretary.

Michigan, Southeastern Veterinary Medical Society. Herman Kiefer Hospital, Detroit, Mich., the second Wednesday of each month from October through May.

Milwaukee Veterinary Medical Association. Wisconsin Humane Society, 4150 N. Humbolt Ave., Milwaukee, Wis., the third Tuesday of each month. Kenneth G. Nicholson, 2161 N. Farwell Ave., Milwaukee, Wis., secretary.

Monterey Bay Area Veterinary Medical Association, the third Wednesday of each month. C. Edward Taylor, 2146 South Broad St., San Luis Obispo, Calif., secretary.

New York City Veterinary Medical Association. Hotel Statler, New York, N. Y., the first Wednesday of each month. C. R. Schroeder, Lederle Laboratories, Inc., Pearl River, N. Y., secretary.

Northern San Joaquin Valley Veterinary Medical Association, the fourth Wednesday of each month. I. N. Bohlender, Box 588, Turlock, Calif., secretary.

Orange Belt Veterinary Medical Association, the second Monday of each month. James R. Ketchersid, 666 East Highland Avenue, San Bernardino, Calif., secretary.

Orange County Veterinary Medical Association, bimonthly, the second Tuesday of each month. J. H. Bower, P. O. Box 355, Santa Ana, Calif., secretary.

Peninsula Veterinary Medical Association, the third Monday of each month. E. W. Paul, Box 866, Redwood City, Calif., secretary.

Redwood Empire Veterinary Medical Association, the second Tuesday of every other month. Charles D. Stafford, Novato, Calif., secretary.

Sacramento Valley Veterinary Medical Association, the fourth Friday of each month. R. C. Goulding, 11511 Capitol Avenue, Sacramento, Calif., secretary.

San Diego County Veterinary Medical Association, the fourth Tuesday of each month. R. J. McFarland, 3621 Jewell St., San Diego 9, Calif., secretary.

Southern California Veterinary Medical Association, the third Wednesday of each month. D. H. McDole, 8674 Melrose Ave., Los Angeles 46, secretary.

South Florida Veterinary Society, the third Tuesday of each month, 8:00 p.m., at the Peckway Skeet Club, Robert P. Knowles, 2936 N.W. 17th Ave., Miami, Fla., secretary.

Tulsa Veterinary Medical Association, the third Thursday of each month, 8:00 p.m., at the Tulsa Hotel. R. S. Todd, 1222 S. Lewis, Tulsa, Okla., secretary.

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for

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The policy, which was developed especially for Association members two decades ago, provides expert defense against claims and suits arising out of the care and treatment of animals, and will pay, to the extent of the policy limits, all expenses and damages resulting from unfavorable verdicts.

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The insurance is placed with one of the largest and most reliable underwriters in the country.

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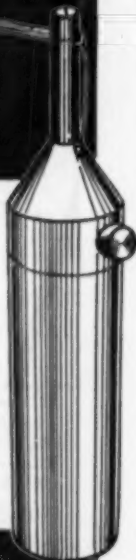
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Remittance must accompany order.

Deadline for want ads 12th of month preceding date of issue.

Names of classified advertisers using key letters cannot be supplied. Address your reply to the key letters, c/o JOURNAL of the AVMA, 600 So. Michigan Ave., Chicago 5, Ill., and it will be transmitted to the advertiser.

Wanted—Veterinarians

WANTED—graduate veterinarian to assist with mixed practice, mostly small animal. State references and qualifications. Address Dr. R. D. Westfall, Colusa, Calif.

WANTED VETERINARIAN—who wants concentrated small animal experience. Excellent hours; no Sunday, holiday, or night work. In Chicago. Send snapshot and background. For information address The Anti-Cruelty Society, 157 W. Grand Ave., Chicago 10, Ill.

Ambitious young veterinarian wanted for small animal hospital. Must have New Jersey license. Address "Box V 8," c/o Journal of the AVMA.

Wyoming State Veterinary Laboratory has need of a veterinarian for field and laboratory work. While experience in diagnostic work would be helpful, it is not essential. Address P.O. Box 960, Laramie, Wyoming.

Detroit veterinarian with modern small animal hospital and well-established practice is interested in a veterinarian in position to purchase partnership. Good opportunity for right man. Address "Box V 3," c/o Journal of the AVMA.

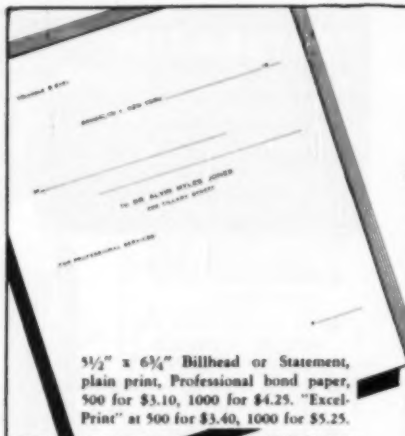
WANTED VETERINARIAN—There is a vacancy for a veterinarian for poultry disease work on the staff of the Delaware Board of Agriculture. This is an opportunity to work in the largest broiler-producing area in the United States. The duties would consist of farm visits and postmortem and bacteriologic work in the laboratory. Any one interested in this position is requested to submit his application to the Poultry Disease Control Department, State Board of Agriculture, Dover, Del.

Wanted—Practices

Experienced veterinarian desires to purchase an established small animal hospital in Michigan, Indiana, or Ohio. Have substantial down payment. Address "Box V 11," c/o Journal of the AVMA.

Thoroughly experienced small animal practitioner desires to purchase practice or partnership in New York State. Address "Box V 10," c/o Journal of the AVMA.

(Continued on page 32)



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Friskies

Authoritative information on the scientific care and feeding of dogs. **No. 6**
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DOG RESEARCH NEWS

How Many Calories?



Most dog nutrition authorities agree that a dog needs 30 to 60 calories a day for each pound the dog weighs, depending on his breed, characteristics and activity. The Friskies formula supplies sufficient energy-food for any size dog and any degree of activity. In addition, Friskies provides a perfect balance of every food element a dog is known to need.

For example, one pound of Friskies Meal supplies as much protein as 1 1/2 lbs. of beef; as much iron as 1 1/2 lbs. of liver; as much calcium and carbohydrates as 4 quarts of milk; and as much protein and minerals as 1 1/2 dozen eggs.

Mechanical Techniques of Breeding Dogs

F. J. (Bob) Bartos, manager of Friskies Kennels, has prepared a bulletin on this subject which has



Introducing the dog to the bitch (preplay)

been praised by veterinarians and kennel operators. It is complete, practical, and well-illustrated. If you would like a copy, write today and ask for Bulletin No. 6.

Puppy Feeding for Healthy Growth



A pup should normally grow to half its adult size in three months. After weaning, pups should be fed four times a day. Give the first meal early in the morning, and the last as late in the evening as convenient—with the other two meals spaced at equal intervals during the day.

By the third or fourth month, the feedings can be cut to three per day—but don't forget that, as puppies grow, their need for more food increases. Feed each puppy as much as he can hold at each meal and let him sleep it off—which is necessary for good digestion and growth.

The most important question is not how many times a day to feed, but *what* to feed. You can spend a lot of time mixing special gruels—and a lot of money buying "extra" meat, eggs, milk, vitamins, etc. But split-litter tests prove that it is absolutely unnecessary. In every single test pups fed exclusively on Friskies Meal have been equal to those fed on more complicated, expensive diets.

There's No Substitute for Experience

So consult your veterinarian regularly. And take advantage of Albers 50 years of experience in animal nutrition. Send your questions about dog feeding and care to Friskies, Dept. Y, Los Angeles 36, Calif.



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5 compartment	\$160.00
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**A lifetime of service and guaranteed by one of
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(CLASSIFIED ADS—Continued from page 30)

Veterinarian, experienced, married, and graduate of an AVMA-approved school, desires to lease or buy a mixed or large animal practice. Illinois, Ohio, Michigan, or Indiana preferred. Address "Box V 3," c/o Journal of the AVMA.

WANTED TO BUY—an established small animal hospital doing enough business to require at least 2 veterinarians to handle. Prefer a warm climate or resort area. Please send details and photo in first letter. Address "Box U 3," c/o Journal of the AVMA.

Wanted—Positions

Graduate veterinarian with eight years' experience, now attending medical school, desires summer jobs. Address "Box V 9," c/o Journal of the AVMA.

Graduate of AVMA-approved school, masters degree in public health, four years' teaching experience in large university, seeks state or institutional opening; graduate work preferred. Will consider unusual opportunity in pathology or physiology. Address "Box V 4," c/o Journal of the AVMA.

Graduate veterinarian, married, one year's experience in general and dairy practice, wishes assistantship preferably with dairy practitioner. Address "Box V 1," c/o Journal of the AVMA.

Experienced veterinarian, married, graduate of AVMA-approved school, desires position as assistant to veterinarian in the East. Possesses New Jersey and Pennsylvania licenses. Address "Box U 6," c/o Journal of the AVMA.

For Sale or Lease—Practices

FOR SALE—general practice, predominantly dairy, located in western British Columbia. Modern home with adjoining office building. Will consider partnership for a limited time, with prospects of sale. Address "Box V 13," c/o Journal of the AVMA.

FOR SALE—small animal practice located in Chicago. Fully equipped, including all instruments, x-ray, cautery, 55 kennels, exercise runs, complete stock of medicines, etc. Outside business interests reason for selling. Price is \$15,000, terms arranged. For full information address "Box V 12," c/o Journal of the AVMA.

FOR SALE—established, growing mixed practice in suburban Philadelphia. Fully equipped office, with clientele listing included. Full particulars furnished to interested veterinarians. Excellent opportunity for recent graduate. Address "Box V 7," c/o Journal of the AVMA.

FOR SALE—small animal hospital located in Miami, Fla., established twelve years. Beautiful building and most modern equipment must be seen to be appreciated. Ill health forces retirement. Address Dr. S. V. Ramsey, 1093 N.E. 79th St., Miami, Fla.

FOR SALE—lucrative mixed practice in southeastern Wisconsin. Home, hospital fully equipped. Attractively priced; terms. Address Dr. H. J. Fiege, 3804 63rd St., Kenosha, Wis.

(Continued on page 36)

One Dose Daily

92.5% to 94.3% effective in treatment

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VETERINARY SULFATHALIDINE[®] phthalylsulfathiazole

SULFATHALIDINE phthalylsulfathiazole is exceptionally effective against swine enteritis in *single daily doses!*

Of 869 feeder pigs with enteritis, SULFATHALIDINE phthalylsulfathiazole was effective in treatment of 804 or 92.5%.¹ Given prophylactically to 1,022 feeder pigs, SULFATHALIDINE prevented postvaccination enteritis in 964 or 94.3%.¹ Other authorities^{2,3,4} also report the efficacy of the drug in treatment and prophylaxis of this costly disease.

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SULFATHALIDINE has proved successful also in treatment of calf scours (white scours), bacillary dysentery of dogs and cats, and enteritis of rabbits.

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No. 2261—0.5-Gm. tablets (slotted), bottles of 100 and 1,000.

No. 2267—¼-lb. and 1-lb. bottles of powder.

1. Vet. Med. 42:170, May, 1947.
2. North Am. Vet. 27:564, Sept., 1946.
3. J. Am. Vet. M.A. 107:238, Oct., 1945.
4. J. Am. Vet. M.A. 106:7, Jan., 1945.

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Miami Beach Street Diagram, Showing Hotels Selected for AVMA Meeting and Their Proximity to Municipal Auditorium

NOTE: The section shown on this diagram lies in the middle eastern part of Miami Beach and represents only a small portion of the city's total area.



- | | | | |
|---------------------|------------------|------------------|----------------|
| 1. Albion | 6. Gale | 11-B. Promenade* | 17. Shelby |
| 1-A. Bancroft | 7. Georgian | 12. Raleigh | 18. Shore Club |
| 1-B. Berkeley Shore | 8. Greenview | 13. Ritz Plaza | 19. South Seas |
| 2. Crest | 9. Marseilles | 13-A. Royal Palm | 20. Surfcomber |
| 3. Delano | 10. Maxine | 14. Sagamore | 21. St. Moritz |
| 4. Dorchester | 11. National | 15. Sands | |
| 5. Dorset | 11-A. New Yorker | 16. San Juan | |

*Located at 3475 Collins—approximately four blocks north of area shown on this diagram.

NOTE: Hotel Nos. 1-A, 1-B, 11-A, 11-B, 13-A, and 21 are new additions to the list first published in the MAY JOURNAL.

HOTEL RESERVATIONS — MIAMI BEACH SESSION

Eighty-Seventh Annual Meeting, AVMA, August 21-24, 1950

Selected Miami Beach hotels listed below are all near the Municipal Auditorium, where convention activities will be centered. Fill out the reservation form and mail it with \$10.00 deposit for each room directly to hotel of your first choice, indicating second and third choices also. Make check or money order payable to hotel of first choice. Deposit will be refunded if reservation is cancelled by Aug. 15. If hotel of first choice is filled, it will forward request to another hotel you have indicated. Confirmation will come from hotel which accepts reservation. Since this is an auditorium convention, there will be no headquarters hotel.

HOTELS AND RATES* —SEE LOCATIONS ON OPPOSITE PAGE

(A.C., Air-Conditioned; O.F., Oceanfront; S.P., Private Swimming Pool)

Hotel and Address	Single	Double (with Twin Beds)
1. Albion (S.P.), 1650 James Ave.	\$4.00	\$6.00
1-A. Bancroft (O.F.), 1801 Collins	4.00	5.00
1-B. Berkeley Shores, 1610 Collins	4.00	4.00
2. Crust, 1670 James Ave.	4.00	5.00
3. Delano (A.C., O.F., S.P.), 1683 Collins	6.00	8.00-12.00
4. Dorchester (S.P.), 1850 Collins ....	...	5.00
5. Dorsat, 1720 Collins	3.00	4.00
6. Gale, 1690 Collins	3.00	4.00
7. Georgian (O.F., S.P.), 1621 Collins	4.00	4.00
8. Greenview, 1671 Washington Ave.	2.00	3.00
9. Marshalls (A.C., O.F., S.P.), 1741 Collins	6.00	8.00
10. Maxine, 1756 Collins ....	...	5.00
11. National (O.F., S.P.), 1667 Collins	6.00	8.00
11-A. New Yorker (O.F.), 1611 Collins ....	...	5.00
11-B. Promenade (A.C., O.F., S.P.), 2473 Collins	8.00	8.00
12. Raleigh (A.C., O.F., S.P.), 1777 Collins	8.00	8.00
13. Ritz Plaza (O.F., S.P.), 1701 Collins	7.00	8.00
13-A. Royal Palm (O.F., S.P.), 1545 Collins ....	...	6.00
14. Sagamore (A.C., O.F., S.P.), 1671 Collins ....	...	7.00
15. Sands (O.F., S.P.), 1601 Collins ....	...	7.00
16. San Juan (A.C., S.P.), 1680 Collins ....	...	4.50
17. Shelby (A.C.), 1826 Collins	3.00	4.00
18. Shore Club (A.C., O.F., S.P.), 1901 Collins	7.00	8.00
19. South Seas (A.C., O.F., S.P.), 1751 Collins	5.00	6.00
20. Surfcomber (A.C., O.F., S.P.), 1717 Collins	7.00	8.00
21. St. Morris (O.F., S.P.), 1565 Collins ....	...	8.00

*Information about availability and rates of suites may be obtained on request to hotels of your choice. See reservation form below.

Cut Off Here

HOTEL RESERVATION FORM — AVMA CONVENTION

To: (Name of Hotel) _____ Date _____

Street Address _____
Miami Beach, Fla.

Please make reservations noted below:

(Three choices MUST be shown.)

Accommodations and Rates Desired:

First choice hotel _____ ☐ Single Room at \$ _____ per day
Second choice hotel _____ ☐ Double Room at \$ _____ per day
Third choice hotel _____ ☐ Send me information on availability and rates of suites

Arriving on (date) _____ at _____ a.m. _____ p.m.

Leaving on (date) _____ at _____ a.m. _____ p.m.

Room will be occupied by:

Name _____ City and State _____

Name _____ City and State _____

My check for \$ _____ is enclosed to bind this reservation. (\$10.00 deposit, payable to hotel of first choice, must be sent for each room requested.)

Your Name (print or type) _____

Street Address _____

City _____ Zone _____ State _____

FOR SALE—well-established mixed practice on main highway in North Carolina. Hospital facilities for small animals, 6-room dwelling separate, 1 acre of land. Gross \$20,000 annually. Price: \$20,000, one-half down. Address "Box V 2," c/o Journal of the AVMA.

FOR SALE—extensive mixed practice established thirty-one years, in east central Missouri. Modern home and office building. Address Dr. C. A. Murphy, Jacksonville, Mo.

FOR SALE—small animal hospital in southern California community. No real estate involved. Presently grossing \$18,000 per year, and still growing. Modern and well equipped. Price \$9,000. Address "Box U 20," c/o Journal of the AVMA.

FOR SALE—established Kentucky general practice, priced reasonable, for cash. Very prosperous county seat town of about 4,000 population. Only veterinarian in three counties. Can be expanded as one desires. Address "Box U 2," c/o Journal of the AVMA.

FOR SALE—modern small animal hospital in Michigan, 11 rooms. \$15,000 down, gross over \$50,000. Will remain with buyer for reasonable time. Address "Box U 1," c/o Journal of the AVMA.

FOR SALE—fully established small animal practice, complete, gross \$16,000. Good lease; purchase of building optional. Rent \$75.00 month. Forty kennels. Terms. Address "Box T 1," c/o Journal of the AVMA.

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For Sale—Miscellaneous

FOR SALE BY M.D.—Westinghouse 30 mil-

(Continued on p. 40)

JOURNAL OF PARASITOLOGY

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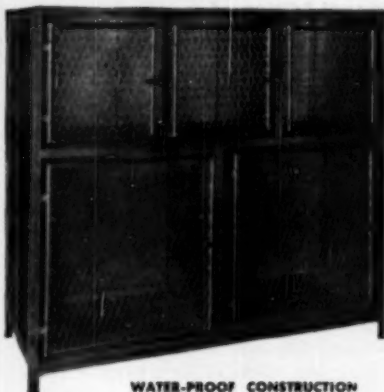
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March 1950

AMERICAN VETERINARY MEDICAL
ASSOCIATION, 600 S. Michigan Ave.,
Chicago 5, Ill.

Veterinary Surgeon

(For Wally E.)

His must be such an understanding heart
Coupled with such extraordinary skill;
The animals must know—they do their part
By standing quietly, so very still.
His soothing words calm dog and man alike
As fingers seek a pain that can't be told;
His reassuring smile can always strike
A note of confidence in young and old.

And when he knows a much-loved pet must go,
When there is trouble that he cannot stay,
With sober face, and kind, he tells you so,
His verdict given in the simplest way,
And swiftly causes suffering to cease;
Your friend lies down in dignity and peace.

—Arthur Frederic Otis

(From the "A Line o' Type or Two" column of the Chicago Tribune.)

What Price War?—The corn borer, said to be a child of World War I, is now cutting down corn production in the U.S.A. to the tune of more than 300,000,000 bushels a year. According to estimates of the USDA (*Feedstuffs*, Dec. 3, 1949), the cut will reach 340,000,000 bushels in 1950, mostly in states west of Ohio. The Bureau of Entomology and Plant Quarantine estimates that the 1950 yield will reach the low figure of 3.15 billion bushels.



POSSESSES BOTH ANTIALLERGIC
AND ANTISPASMODIC ACTIVITY

DURING HOT WEATHER ESPECIALLY

Skin irritations, dermatoses and other allergic conditions of dogs, cats and farm animals are common, especially during the summer months. Benadryl Hydrochloride (Diphenhydramine Hydrochloride) will be found effective in relieving these patients.

In recent years, there has been an abundance of experimental and clinical work reported on the close association of histamine to allergy. Benadryl prevents histamine-induced reactions and it is by this action against histamine that Benadryl affords relief in dermatoses, including eczema and urticaria, which are of obscure origin.

Benadryl
in
Veterinary
Practice

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Department of Veterinary Medicine
PARKE, DAVIS & COMPANY
DETROIT 32, MICHIGAN

Same Day Service

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5,000 (in drum)	175.00

SULFATHIAZOLE BOLUSES

240 Grains

100 (box of 50)	\$ 16.50
1,000 (box of 50)	145.00

SULFANILAMIDE TABLETS

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1,000 (in drum)	\$ 15.00
5,000 (in drum)	65.00

SULFANILAMIDE BOLUSES

240 Grains

100 (box of 50)	\$ 8.00
1,000 (box of 50)	65.00

SULFA-UREA BOLUSES

(Urea 207 gr., Sulfanilamide 33 gr.
and Sulfathiazole 5 gr.)

100 (box of 50)	\$ 4.50
1,000 (box of 50)	40.00

SULFAMERAZINE TABLETS

30 Grains

500 (in drum)	\$ 30.00
1,000 (in drum)	55.00

60 Grains

500 (in drum)	\$ 55.00
1,000 (in drum)	105.00

SULFAQUINOXALINE-SODIUM TABLETS

125 mg.

1,000	\$ 9.00
5,000 (in drum)	42.00
10,000 (in drum)	80.00

(No Charge for Shipping)

Brown Pharmaceutical Co., Inc.

2255 Bedford Ave., Brooklyn 26, New York

(CLASSIFIED ADS—Continued from page 36)

amp., 90 Kil. volt office model x-ray unit in excellent condition. Can attach a fluoroscope. A \$1,100.00 machine; will sell for \$500.00. Address Dr. Gordon C. Tornberg, 124 E. Cass St., Cadillac, Mich.

FOR SALE—One GE Model D x-ray, bedside unit with accessories; also one all-electric dog dryer. Address Dr. Roy E. Kluck, 1614 Huffman Blvd., Rockford, Ill.

PORTABLE X-RAY UNIT WITH TIMER—Universal Fieldmaster 25 Ma. 85 KVP, list price \$618, save \$200 at \$418 for this floor sample; guaranteed.

PELTON STERILIZER MODEL 214C—Automatic electric; porcelain; with trays \$29.50. 14 x 5 x 3 1/2 deep incl. needle tray; guaranteed. SURGICAL SUPPLY SERVICE, 825 WALNUT ST., PHILADELPHIA 7, PA. ESTABLISHED 1935.

FOR SALE—large animal practice, mostly dairy work, located in Pacific Northwest. Modern house and practice for sum equivalent to one year's gross. Address "Box V 16," c/o Journal of the AVMA.

Health demands sale of small animal hospital in southern California resort town. Complete, modern equipment. Excellent opportunity for expansion. \$8,000 cash required. Address "Box V 17," c/o Journal of the AVMA.

Miscellaneous

PREGNANCY DIAGNOSIS—in the mare from 45th to 150th day. Write for vials and mailing tubes. Price: \$7.00; two or more tests, \$6.00 each. PREGNANCY DIAGNOSTIC LABORATORIES, H. S. Lames, D.V.M., Dysart, Iowa.

SALES AGENTS—Manufacturer's representative, covering upper New England, seeks to represent a strictly ethical firm having a comprehensive veterinary line, including biologicals, pharmaceuticals, and specialties. Instruments desirable but not essential. Line to be SOLD TO GRADUATE VETERINARIANS ONLY. Address "Box V 6," c/o Journal of the AVMA.

Books and Magazines

Pedigree Dog Breeding, Showing, etc. Anything in dog books, kennel forms. Dog World Mag., \$5, one year; \$5, two years. Judy Publishing Co., 3323 Michigan Blvd., Chicago 16, Ill.

For Sale—Artificial Insemination Supplies

ARTIFICIAL INSEMINATION INSTRUMENTS—Essential equipment, replacement parts and materials, designed and manufactured especially for artificial insemination. Prompt delivery. New catalog. Address: Breeder's Equipment Co., Flourtown, Pa.

Jenner's Rejected Paper.—Although 154 years have elapsed since Dr. Edward Jenner (1749-1823) discovered smallpox vaccination, his achievement still stands at the top of all medical discoveries from the standpoint of human welfare, not to mention the lesson it was to teach in the science of immunology. His paper on cowpox sent to the Royal Society in 1797 was rejected on the grounds (*Brit. M. J.*, May 28, 1949) that its publication "would injure his established reputation."

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to large and small animals affords
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TRI-SULFA SOLUTION — for intravenous or intraperitoneal injection. Nitrogenized and pH-controlled, it contains 4% EACH of Sulfamerazine sodium, Sulfathiazole sodium, Sulfadiazine sodium.

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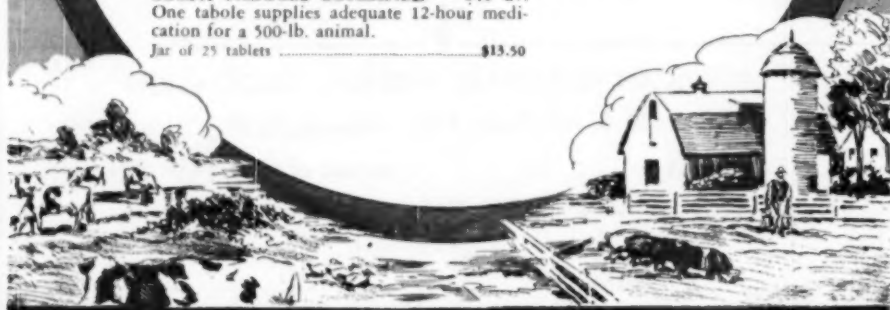
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SulfaDIAZINE + SulfaTHIAZOLE + SulfaMERAZINE, in EQUAL proportions, are 3 *synergistic* sulfas needed for maximum therapeutic action. They are indicated in the treatment of ANY sulfonamide-sensitive infection, particularly those due to *staphylococci* and *streptococci*, and in *pneumonic* conditions.



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Intradermal Canine Distemper Vaccine (Lockhart)

A proved method for producing a quick, efficient immunity to the virus of distemper.

A safe product — safe from reaction; incapable of producing distemper in animals during the immunizing period, or of producing distemper in animals coming in contact with those being immunized.

The only product of its kind which was originally designed for intradermal administration — a method not easily done by the laity.

Two doses, of 1 cc. each, administered intradermally at 7 to 14 day intervals, are effective. In very young animals, a third injection is desirable when the animal is 6 to 7 months old. This third injection, or booster, may be Intradermal Vaccine, or it may be 2 cc. blood virus (Lockhart) administered subcutaneously.

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Patent Applied For



180 actual field cases of bovine tympany treated—142 perfect recoveries. That is a test record of Tympanol.

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Tympanol is non-toxic and does not interfere with collateral medication. Inject it directly into the rumen, or give with water by drench or stomach tube.

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 100 cc. Vials
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